

A photograph of a residential garden. In the foreground, there is a paved path and a green bush. The middle ground is filled with trees, some with autumn-colored leaves and others bare. In the background, a red brick building with windows is visible. The text is overlaid on the image.

Cultivating Change

Investigating Landscape Transformation in Shared Residential Gardens

Mônica Veras Morais

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Transformation in Shared
Residential Gardens

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**Gardening is about removing what you do not want
to make room for something else to grow.**

*Resident, recalled from fieldwork notes, and later reflected upon by the researcher
as a lesson extending well beyond the garden*

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Summary

This dissertation is grounded in gardens and shaped by an immersive, on-site research process. It embraces the slow pace of an ethnographic approach in landscape architecture and remains open to discovery, allowing insight to emerge from situated observation of everyday interactions. By tracing short timeframes and subtle transformations, the research reveals the learning potential embedded in daily life, particularly as it unfolds in shared residential gardens. These gardens are approached as residential commons: collectively used and governed spaces in which practices of commoning and their spatial conditions become a design assignment.

Using landscape transformation as an investigative lens, the research examines how shared residential gardens change over time and how these insights can guide design decisions that support their long-term evolution. These gardens are treated as landscape laboratories in which patterns of spatial, social and ecological interaction can be observed and analysed. Special attention is given to how human and non-human actors influence compositional shifts and how governance and design continually reshape one another.

The central research question is: **How can insights from landscape transformation in shared residential gardens inform the design of residential green commons that accommodate evolving social-ecological needs?** To address this question, the study adopts a qualitative, constructivist and ethnographic research strategy, taking the EVA-Lanxmeer neighbourhood in Culemborg (The Netherlands) as its primary research site. Fourteen shared gardens were examined through an integrated methodology combining diachronic composition analysis, actor and interaction analysis, and content analysis. This framework enabled the research to trace where, when, why and how change occurred, which actors were involved, and which compositional layers were affected. To assess the broader relevance of the findings, two additional cases, Kersentuin (Utrecht) and Vrijburcht (Amsterdam), were analysed for validation and cross-site reflection.

Chapter 1 establishes the conceptual foundation for investigating how shared residential gardens change over time and outlines the disciplinary and societal context in which this research unfolds. The dissertation is structured in two parts.

Part I – Investigating On-Site Transformation presents the analytical framework and applies it across the three research sites, identifying recurrent processes of change and their underlying dynamics. This part comprises Chapters 2 to 4.

Chapter 2 introduces a series of analytical tools and strategies that together form an integrated approach combining methods from landscape architectural design and governance to investigate transformation in shared residential gardens. **Chapter 3** presents the primary research site, EVA-Lanxmeer, and the analyses conducted in each of its 14 shared gardens, concluding with an overview of findings. **Chapter 4** presents the cases of Kersentuin and Vrijburcht and discusses their findings in relation to those of Lanxmeer.

Part II – Cultivating Change builds on the empirical analysis to formulate design principles and reflects on their broader relevance beyond the studied gardens. It includes Chapters 5 and 6. **Chapter 5** discusses the findings in relation to the capacities and limitations of design and governance, and elaborates, tests and validates a set of design principles that consider how garden design and community governance can collaboratively support garden evolution. **Chapter 6** concludes the dissertation by summarising and reflecting on the findings, their applicability and generalisation, and the pathways opened by this research.

The findings demonstrate that change in shared residential gardens emerges through a continuous process of negotiation and adaptation embedded in both landscape design and governance structures, involving human and non-human actors. The research shows how clear compositional frameworks and collectively negotiated rules contribute to long-term coherence, adaptability and collective stewardship of residential gardens as commons. At the same time, it highlights the limitations of both design and governance instruments when they are not supported by ongoing spatial interpretation and engagement.

The research contributes to landscape architecture by articulating landscape design as a form of governance practice, capable of shaping institutional arrangements and social relations through spatial means. It proposes a conceptual framework that positions landscape architecture not only as a project-based activity, but as an evolving practice operating across temporal scales and governance settings. By doing so, the dissertation clarifies the contribution of landscape architecture to debates on spatial governance and offers insights relevant to both academic research and professional practice.

Samenvatting

Dit proefschrift is geworteld in tuinen en gevormd door een intensief, locatiegebonden onderzoeksproces. Het omarmt het trage tempo van een etnografische benadering binnen de landschapsarchitectuur en blijft open voor ontdekking, waarbij inzichten ontstaan uit gesitueerde observaties van alledaagse interacties. Door korte tijdsperiodes en subtiele transformaties te volgen, laat het onderzoek het leerpotentieel zien dat besloten ligt in het dagelijks leven, met name zoals dit zich manifesteert in gedeelde woontuinen. Deze tuinen worden benaderd als residentiële commons: collectief gebruikte en beheerde ruimtes waarin praktijken van commoning en hun ruimtelijke condities een ontwerpopgave vormen.

Met landschapstransformatie als analytische invalshoek onderzoekt dit onderzoek hoe gedeelde woontuinen in de tijd veranderen en hoe dergelijke inzichten richting kunnen geven aan ontwerpbeslissingen die hun langetermijnontwikkeling ondersteunen. De tuinen worden opgevat als landschappelijke laboratoria waarin patronen van ruimtelijke, sociale en ecologische interactie kunnen worden waargenomen en geanalyseerd. Bijzondere aandacht gaat uit naar de wijze waarop menselijke en niet-menselijke actoren compositorische verschuivingen beïnvloeden en hoe bestuur en ontwerp elkaar voortdurend hervormen.

De centrale onderzoeksvraag luidt: **Hoe kunnen inzichten uit landschapstransformatie in gedeelde woontuinen het ontwerp van residentiële groene commons informeren die tegemoetkomen aan veranderende sociaal-ecologische behoeften?** Om deze vraag te beantwoorden hanteert het onderzoek een kwalitatieve, constructivistische en etnografische onderzoeksstrategie, met de wijk EVA-Lanxmeer in Culemborg (Nederland) als primaire onderzoekslocatie. Veertien gedeelde tuinen zijn onderzocht via een geïntegreerde methodologie die diachrone compositieanalyse, analyse van actoren en interacties, en inhoudsanalyse combineert. Dit raamwerk maakte het mogelijk te achterhalen waar, wanneer, waarom en hoe veranderingen plaatsvonden, welke actoren daarbij betrokken waren en welke compositorische lagen werden beïnvloed. Om de bredere relevantie van de bevindingen te toetsen, zijn twee aanvullende cases, Kersentuin (Utrecht) en Vrijburcht (Amsterdam), geanalyseerd ter validatie en vergelijking.

Hoofdstuk 1 legt de conceptuele basis voor het onderzoek naar veranderingen in gedeelde woontuinen in de tijd en schetst de disciplinaire en maatschappelijke context waarbinnen dit onderzoek plaatsvindt. Het proefschrift is opgebouwd uit twee delen. **Deel I – Investigating On-Site Transformation** presenteert het analytisch raamwerk en past dit toe op de drie onderzoekslocaties, waarbij terugkerende veranderingsprocessen en hun onderliggende dynamieken worden geïdentificeerd. Dit deel omvat hoofdstukken 2 tot en met 4. **Hoofdstuk 2** introduceert een reeks analytische instrumenten en strategieën die samen een geïntegreerde benadering vormen, waarin methoden uit landschapsarchitectonisch ontwerp en governance worden gecombineerd om transformatie in gedeelde woontuinen te onderzoeken. **Hoofdstuk 3** presenteert de primaire onderzoekslocatie, EVA-Lanxmeer, en de analyses van elk van de veertien gedeelde tuinen, afgesloten met een overzicht van de bevindingen. **Hoofdstuk 4** behandelt de cases Kersentuin en Vrijburcht en bespreekt de resultaten in relatie tot die van Lanxmeer.

Deel II – Cultivating Change bouwt voort op de empirische analyse om ontwerpprincipes te formuleren en reflecteert op hun bredere relevantie voorbij de onderzochte tuinen. Dit deel omvat hoofdstukken 5 en 6. **Hoofdstuk 5** bespreekt de bevindingen in relatie tot de mogelijkheden en beperkingen van ontwerp en governance en werkt een reeks ontwerpprincipes uit, test en valideert deze, met aandacht voor de manier waarop tuinontwerp en gemeenschapsbestuur gezamenlijk de verdere ontwikkeling van tuinen kunnen ondersteunen. **Hoofdstuk 6** sluit het proefschrift af met een samenvatting en reflectie op de bevindingen, hun toepasbaarheid en generaliseerbaarheid, en de perspectieven die dit onderzoek opent.

De bevindingen tonen aan dat verandering in gedeelde woontuinen voortkomt uit een continu proces van onderhandeling en aanpassing dat is ingebed in zowel landschapsontwerp als governance-structuren, en waarbij zowel menselijke als niet-menselijke actoren betrokken zijn. Het onderzoek laat zien hoe heldere compositorische kaders en collectief onderhandelde regels bijdragen aan langdurige samenhang, aanpasbaarheid en collectief beheer van woontuinen als commons, maar wijst ook op de beperkingen van ontwerp- en governance-instrumenten wanneer deze niet worden ondersteund door voortdurende ruimtelijke interpretatie en betrokkenheid.

Het onderzoek draagt bij aan de landschapsarchitectuur door landschapsontwerp te positioneren als een vorm van governance-praktijk die opereert over verschillende tijdschalen en contexten. Daarmee verduidelijkt het proefschrift de bijdrage van de landschapsarchitectuur aan het debat over ruimtelijke governance en biedt het inzichten die relevant zijn voor zowel academisch onderzoek als de beroepspraktijk.

Glossary

Urban (green) commons

Shared urban spaces — often green or open — managed collectively by a community rather than exclusively by the state or market. Unlike public parks or private gardens, these spaces depend on local governance, mutual agreements, and ongoing care by users. They are created and sustained through practices of commoning, which involve negotiation, boundary-setting, and stewardship over time. Urban green commons offer both ecological and social value, but remain vulnerable to enclosure, neglect, and contested access (Foster & Iaione, 2016; Linebaugh, 2008).

Residential commons

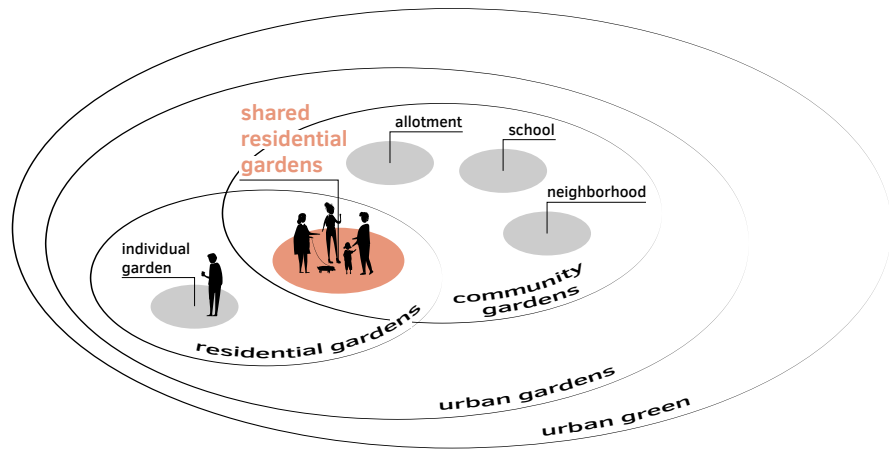
Collectively used and managed spaces embedded within residential environments. These may include courtyards, pathways, or facilities shaped through shared responsibility, negotiation, and everyday interaction among residents.

Residential green commons

Shared residential gardens shaped and maintained through commoning practices.

Shared residential garden

A **residential garden** used collectively by different households. The term shared is preferred over collective, communal, or common. Derived from the Latin *collectivus*, collective means ‘gathered together’ (Merriam-Webster, n.d-a) and is often associated with allotment gardens, where individual plots exist within a collective whole. Communal refers to something belonging to a group (Merriam-Webster, n.d-b), but tends to evoke the image of community garden — a distinct typology with strong associations in the public imagination. Common often implies the absence of individual ownership and non-exclusive access, as in ‘common-pool resources’ (Ostrom, 1990). In contrast, shared is a more neutral term that emphasises use and experience without making specific claims about ownership or governance. It accommodates a broader spectrum of garden arrangements (Merriam-Webster, n.d-c).



Shared residential garden: a garden shared by multiple households, situated within the domestic realm and often serving as a place for commoning practices.

Residential garden

A **garden** belonging to the domestic realm. In the literature, such spaces have been referred to as ‘owner-occupied gardens’ or ‘private gardens’ (Jakobsson & Dewaelheyns, 2018), ‘domestic gardens’ (Bhatti & Church, 2000), and ‘residential gardens’ (Negret et al., 2022). The word ‘private’, and its variants, may conflate access with ownership. ‘Owner-occupied’ distances the garden from the housing sphere and excludes users such as tenants. While ‘domestic garden’ has been widely used over the past decade, the term ‘domestic’ may be misread as the antonym of foreign, adding ambiguity. In contrast, ‘residential’ offers a clear reference to the place where people live and accommodates a wider range of tenure arrangements. For these reasons, ‘residential garden’ is the terminology adopted in this research.

This definition excludes ‘home gardens’ or ‘household gardens’ (Galhena et al., 2013), ‘allotment gardens’, and other community or urban gardens located outside — though possibly adjacent to — the residential parcel (Iaquinta & Drescher, 2010).

Garden

An enclosed space near a dwelling, typically used for cultivation, leisure, or enjoyment. Beyond its physical form, the garden embodies a specific **composition** and carries symbolic and cultural meanings, often reflecting aesthetic ideals, personal attachments, or collective identity (Vroom, 2006). In this research, a garden is defined by its users: if a community regards a space as a garden, it is considered one. This perspective recognises the garden as a relational space shaped through the ongoing interaction between people and place.

(Design) composition

The arrangement and interaction of formal elements that define the physical and experiential structure of a garden. In this research, composition is analysed through four interrelated **forms**: basic, spatial, programme, and image (De Wit, 2014).

Form(s)

The medium through which space becomes perceptible and meaningful (De Wit, 2014). It encompasses the organisation of shapes, materials, textures, and colours within a space, producing a cumulative effect on those who move through and experience it (Olin, 1988). Form therefore underpins **spatiality**.

Spatiality

The set of characteristics that define the quality of a space, including its three-dimensional structure, surfaces, and material expression. In landscape architecture, spatiality also refers to the immersive, atmospheric, and affective nature of landscape experience (Corner, 1992). In gardens, spatial qualities are further shaped by **governance** decisions and practices of care.

(Garden) governance

The way a group of people organises to care for a garden as a social-ecological environment throughout its lifespan. It comprises a set of continually adapted interventions, actions, decision-making processes, institutions, and behaviours directed towards managing the garden — including the act of **gardening**. This definition draws on the concept of resource governance (Ostrom, 1990), adaptive governance (Dietz et al., 2009), environmental governance (Lemos & Agrawal, 2006), and the specific framing of garden governance proposed by Dewaelheyns et al. (2016).

Gardening

A set of situated, practical activities undertaken to care for, cultivate, and manage gardens. These tasks — such as planting, pruning, weeding, watering, and harvesting — not only maintain but actively shape the garden's form, atmosphere, and sensory experience. Gardening may be carried out individually or collectively by the garden's **stewards** and unfolds in real time, responding to seasonal rhythms, growth, and decay. As argued by Raxworthy (2018), gardening is not merely maintenance but a creative, spatial practice that enables ongoing transformation.

Steward(s) (stewardship)

A steward is a human **actor** who takes responsibility for the ongoing care and adaptive management of a space. In shared residential gardens, stewardship involves maintaining the garden's function, negotiating its use, and gardening — enabling transformation over time. As Luo (2021) notes, stewards sustain the site beyond its original design, supporting its open-ended evolution. This role aligns with Raxworthy's (2018) view of the gardener as a steward who responds to growth and change through attentive, situated care.

Actor(s)

An actor is any individual, group, or entity — human or non-human — that participates in, influences, or is affected by governance processes. In shared gardens, actors continuously engage through **interactions** and may include residents, designers, policymakers, plant species, soil, or sunlight, each carrying different forms of agency, resources, and interests. Acknowledging non-human actors foregrounds the relational character of social-ecological systems, where ecological processes actively shape outcomes.

Interactions

The exchanges, **negotiations**, and relationships through which human and non-human actors engage with one another. Interactions may be formal — following established procedures — or informal, and they shape how decisions are made, resources are shared, and conflicts are resolved (Lemos & Agrawal, 2006).

Negotiation (verbal and non-verbal)

In governance literature, negotiation refers to the process through which actors interact to manage differences, align interests, coordinate action, or shape outcomes (de Bruijn et al., 2010). This research extends the concept to include subtle, emergent, and non-verbal forms of alignment — also with non-human actors and the physical environment. From a constructivist, practice-based, or post-humanist perspective, negotiation unfolds through situated, relational practices that contribute to compositional **change** over time.

Change

A process through which physical, social, or ecological conditions are altered over time. In shared residential gardens, change becomes perceptible when the garden's composition shifts from its original state to a different condition. In this research, change is observed diachronically and understood as something that can also be **cultivated** by design and governance.

To cultivate change

To deliberately shape environments in ways that support ongoing transformation through human and non-human interactions. In shared residential gardens, change can be fostered by increasing adaptability and minimising preventable user-led redesign, so that spaces remain responsive over time.

1 Grounding the research

This research focuses on learning from everyday landscape transformation in shared residential gardens, understood as evolving sites of commoning practices and social-ecological dynamics. This chapter begins by presenting gardens as foundational figures in landscape architecture and explores the potential of shared residential gardens as sites of spatial, social, and ecological learning. These gardens are then examined through the lens of urban commons theory, emphasising their role in daily commoning practices and their increasing relevance in contemporary housing contexts. Landscape transformation is introduced as an investigative lens, with a focus on small-scale events and their cumulative effects. The chapter then outlines the problem statement and research questions, followed by the research approach. Together, these elements establish the conceptual foundation for investigating how shared gardens change over time and how such insights can contribute to accommodating evolving social-ecological needs. The chapter concludes with an outline of the dissertation structure, linking chapters to the research questions and methods.

1.1 Opening: shared residential gardens as landscape laboratories

This dissertation begins with the garden — not as a backdrop to urban life, but as a dynamic space where spatial, ecological, and social processes are continuously negotiated. Gardens, particularly those embedded in residential settings, provide a uniquely concentrated context in which to observe the evolving relationship between people, nature, and design. While often associated with care, cultivation, and domestic retreat, gardens also serve as sites of experimentation and transformation. When shared among multiple households, they take on additional layers of

complexity, becoming spaces where governance, commoning practices, and spatial agency intersect. In this section, the garden is explored as a foundational figure within landscape architecture, and as an everyday landscape that offers insight into the broader themes of transformation and collective use.

1.1.1 **On gardens as sites of exploration**

Traditionally defined by their enclosure and association with cultivation, gardens are often linked to reflection, pleasure, and care. Yet historically, their roles have expanded to include sites of memory, artistic composition, daily activities, and symbolic expression (Vroom, 2006). In many instances, they serve not only as places for living with nature, but also as frames through which nature is abstracted, reimagined, or performed. Beyond their material form, gardens carry social, aesthetic, and cultural meanings — at once functional environments and vessels of collective imagination (Francis, 1990).

Gardens have long served as spaces where the complexity of landscape becomes legible through concentrated form and structure (Aben & De Wit, 1999). As a spatial threshold, they mediate between oppositions — inside and outside, nature and culture, private and public — making them sites where relationships among humans, non-humans, and the environment are continuously shaped and redefined. At the same time, they reflect broader ideological frameworks, where cultural understandings of nature are made visible through symbolic and spatial choices (Meyer, 1991). Beyond their representational role, gardens also function as sites of experimentation, where landscape architecture can test and refine its conceptual and material practices (Corner, 1999). They are, therefore, both a mirror of the world and a setting through which it can be reimagined.

The discipline of landscape architecture is rooted in gardens. Many key principles — scale, spatial order, symbolism, sensory experience — were first explored and articulated through gardens (Steenbergen & Reh, 2003). Historically, gardens provided the site where human ambitions to organise, represent, and live with nature were made tangible (Panzini, 2013). Even as the scope of landscape architecture has expanded to encompass larger scales and more diverse environments, the garden remains a crucial source of theoretical insight and design experimentation.

As spaces where design is both tested and lived, the garden continues to offer a concentrated space for testing ideas on the interplay between spatial composition, ecological processes, and human experience.

1.1.2 On residential gardens and their evolving nature

Most urban gardens are situated within residential parcels, scattered across the urban fabric and often concealed from public view. These residential gardens vary considerably in form and size and typically lack an overarching coherent structure (Cameron et al., 2012). However, their assemblage is hypothesised to hold substantial landscape agency (Dewaelheyns, 2014). This is primarily due to their prominent presence within urban landscapes, constituting a significant portion of the urban green infrastructure in European cities. For instance, residential gardens occupy approximately 22.7 per cent of the urban surface in Edinburgh and 26.8 per cent in Leicester, accounting respectively for 35 per cent and 47 per cent of total urban greenery (Loram et al., 2007). They also represent 8 per cent of the Flemish territory (Dewaelheyns et al., 2014) and comprise 42 per cent of urban green spaces in Brussels (Van de Voorde et al., 2008).

Like the house itself, the residential garden is seen as a refuge from the external world (Bhatti & Church, 2001, 2004). While contributing to the building of place identity and sense of self, it triggers an intimate relationship with nature (Bernardini & Irvine, 2007), closer than the human-nature ties found in public green spaces (Coolen & Meesters, 2012). It is also commonly linked to increased health and well-being and to restorative properties for both humans and non-humans (Tzoulas et al., 2007). In addition, residential gardens play a critical role in urban biodiversity, carbon sequestration, temperature regulation and flood control (Cameron et al., 2012).

While exceptional gardens, such as historical formal gardens, are carefully maintained to preserve their original spatial structures, residential gardens tend to evolve more spontaneously. Often perceived as extensions of the home and self (Freeman et al., 2012), they are highly malleable, readily reflecting shifting needs and aspirations. Managed autonomously, they are controlled environments that enable individuals to articulate their worldviews and preferences; nonetheless, ecological processes remain intricately interwoven with human activities. Continuously shaped by numerous interactions between humans and non-humans, their physical features frequently evolve through experimentation, trial, and error. Even when the garden design is outsourced, designers are typically involved during the initial phases of conception and implementation; thereafter, they step away, allowing gardens to respond to social and ecological forces, including the whims of nature and the preferences of garden users — all within the protected confines of the domestic sphere. Altogether, these factors contribute to a 'complex timescape' within residential gardens (Cattoor & Dewaelheyns, 2020), characterised by inherent dynamism and minimal constancy in their physical-spatial configurations. (Figure 1.1)



FIG. 1.1 A garden that changed under top-down governance. Residential garden Heel Europa in Weidevenne, Purmerend, designed by DELVA Landscape Architecture / Urbanism. Photographs from 2021 (left, DELVA, n.d) and 2015 (right).

As everyday landscapes, residential gardens offer a concentrated view of how spatial arrangements and lived experience evolve together. Over time, they accumulate traces of these evolving social and ecological needs and responses, offering insight into the ways domestic space is continuously negotiated.

1.1.3 On the learning potential of shared residential gardens

When residential gardens are shared among multiple households, they gain additional relevance for exploring the evolving interplay between spatiality, the biophysical world, and human needs. These shared settings move beyond individualised experience to become inherent meeting spaces and social arenas, where community engagement is not only facilitated but often required (Veras Morais et al., 2022). They foster community building by encouraging interpersonal collaboration, while also contributing to the formation of social networks and the consolidation of social capital (Maclean et al., 2014; Maguire & Hagan, 2007). Like other communal areas within the urban green infrastructure, they serve as stages for cultural, educational, and recreational activities, alongside ecological and environmental action. In doing so, they support biocultural diversity and provide fertile ground for social learning (Chan et al., 2015). Over time, these gardens become spaces where shared meaning is continuously negotiated and re-signified through practice and interaction (Kurtz, 2013).

Because they are jointly used, shared residential gardens also compel residents — often holding diverse worldviews — to establish some level of structure and procedure for collective decision-making and management. The garden's very existence, therefore, depends on a degree of coordination and definition of roles, even when that involves outsourcing maintenance and upkeep to third parties. These arrangements help temper individual leanings and support democratic values, while also preserving autonomous stewardship, and close relationships among humans and non-humans and the physical environment.

The 'shared' condition introduces collective use and stewardship into the residential garden, transforming it into a setting where the interaction between design and social-ecological processes becomes particularly visible. It is also where the balance between individual and collective interests is continuously negotiated, sometimes explicitly, often tacitly.

Therefore, shared residential gardens offer fertile ground for exploration through their three combined dimensions: as embodiments of landscape architecture in a concentrated form, as spaces shaped by ongoing transformation, and as settings that stage and catalyse interaction among humans, non-humans, and the physical environment.

1.2 Commoning in urban residential landscapes

The term commons has long been associated with collectively used and governed resources. In recent years, it has been extended into urban contexts to describe a growing variety of shared spaces and social practices. Among these, residential commons have gained increasing attention in both policy and design. This section explores how the concept of commoning applies to residential spaces, particularly shared gardens, by engaging with commons and housing literature from a landscape architecture perspective. The aim is to frame shared residential gardens as socially and ecologically produced spaces, shaped through everyday practices.

1.2.1 Urban green commons in the residential context

Shared residential gardens, although belonging to the domestic sphere, are collectively governed. They are shaped through negotiation, shared practices, and ongoing processes of value formation among residents. In this sense, they can be understood as settings of 'commoning' — a term that refers to the social practices through which resources are managed collectively, rights and responsibilities are negotiated, and communal relationships are continually produced and reproduced (Bollier, 2011; Gibson-Graham et al., 2013; Linebaugh, 2008). Rather than focusing solely on the resource itself — the garden — this perspective emphasises the everyday actions, agreements, and adjustments through which collective use and care are enacted.

Accordingly, shared residential gardens are often interpreted as urban green commons — green spaces located within cities that are collectively managed by communities (Colding & Barthel, 2013). They are also frequently discussed within the broader category of residential commons, referring to shared spaces embedded within housing developments, which may include courtyards, playgrounds, gardens, and other semi-public environments (Felstead et al., 2019). In both framings, the emphasis lies on the intertwining of spatial arrangement and social practice; how residents co-create, maintain, and negotiate shared environments as part of their everyday life.

The concept of urban green commons represents an interpretative extension of commons theory. Popularised through the work of Ostrom (1990), the notion of the commons was originally associated with common-pool resources (CPRs), defined as natural or constructed systems in which it is not possible to exclude users and where one person's use can reduce availability for others (Ostrom et al., 1999). Through extensive empirical research, Ostrom challenged the thesis of the 'tragedy of the commons' proposed by Hardin (1968), demonstrating that communities are capable of sustainably self-governing CPRs under certain conditions. She formulated eight principles that support the local governance of these shared resources. Although initially focused on natural and complex ecosystems, Ostrom's principles have since been widely adapted to various urban spaces and infrastructures, including residential gardens (Veras Morais et al., 2022), allotment gardens, community gardens, urban parks (Berge & van Laerhoven, 2011; Reis & Ferreira, 2015; Rogge & Theesfeld, 2018), and even broader urban governance frameworks (Foster & Iaione, 2016).

This conceptual extension of the commons into urban contexts does not go uncontested. Several scholars have questioned the appropriateness of framing certain urban spaces — particularly semi-private or privately owned ones — as commons (Huron, 2015). Critics argue that the classical notion of commons is rooted in shared use and open access, which becomes more ambiguous in urban settings characterised by formal ownership structures, legal restrictions, and differentiated access. In such contexts, the balance between private rights and collective use remains a point of debate, complicating the legitimacy of applying the term 'commons' without critical reflection.

Despite these critiques, the significance of commoning practices — the everyday processes through which shared use, care, and negotiation take place — cannot be denied or overlooked. It is precisely these practices that make shared residential gardens distinct as social and spatial phenomena. In recent years, the idea of the urban commons has experienced a notable revival, gaining traction as a framework for promoting democratic engagement, participatory governance, ecological stewardship, and community resilience (Foster & Iaione, 2016). Rather than focusing solely on legal ownership, contemporary urban commons research often highlights the social processes and informal practices that sustain shared spaces over time (Iaione & Nictolis, 2021; Stavrides, 2016). In this sense, shared residential gardens can be seen as critical sites where the values and tensions of commoning are negotiated daily, contributing to broader discussions on the future of urban living.

While the recent revival of the urban commons has brought renewed attention to the value of grassroots initiatives and self-organisation (Bollier, 2007; Hess, 2008; Iaione & Nictolis, 2021), these are sometimes framed through implicitly normative assumptions. Bottom-up governance is often associated with ideals of democracy, inclusivity, and adaptability, whereas top-down structures are sometimes portrayed as rigid or exclusionary (Harvey, 2012). However, governance processes in practice are more complex. Self-organised groups may encounter challenges such as sustaining participation, navigating internal conflicts, or ensuring equitable access and representation. Similarly, top-down frameworks can at times provide essential support structures and continuity (Huron, 2017). Recognising these nuances is essential for understanding shared gardens not as idealised commons, but as evolving spaces where negotiation, contestation, and cooperation continually shape both social-ecological and spatial outcomes.

Regardless of the conceptual debates and terminological ambiguities surrounding the notion of the commons, what remains clear is that collectively governed shared spaces have tangible spatial, social, and ecological implications. Beyond theoretical constructs, they are lived environments where everyday practices, design decisions, and governance arrangements interact and evolve.

1.2.2 Positioning residential commons in landscape architecture research

The notion of the urban commons has gained increasing visibility in both professional design practice (Commons Network, 2018; Dellenbaugh et al., 2015) and academic research (Feinberg et al., 2021). This renewed interest reflects a broader cultural and political shift toward collective governance, participatory processes, and the revaluation of shared spaces within urban environments (Iaione, 2016). In this context, residential commons, including shared courtyards, gardens, and other semi-public spaces, have come to symbolise strategies for densification and ecological integration, as well as social frameworks for collaboration and stewardship (Balmer & Bernet, 2022; Guisan et al., 2025; Rabinowitz, 2012).

Within urban commons research, attention has only recently begun to extend beyond questions of collective governance and resource management to consider the spatial dimensions of commoning, particularly through the growing engagement of architects and spatial designers with commoning practices. Despite this emerging interest, spatial considerations remain comparatively underrepresented and insufficiently theorised within the broader body of urban commons research. (Aernouts, 2020)

Although matters of place, function, and scale are pervasive in commons research, *space* tends to be conceptualised in static terms, with *spatiality* often treated implicitly as a backdrop for governance. A critical perspective recognises that commons not only exist within space but actively produce and reconfigure spatial relations, inviting deeper inquiry into how practices of commoning create places, renegotiate scales, and contest boundaries. (Moss, 2014)

Similarly, research on residential commons has traditionally prioritised governance structures and social organisation over questions of spatial design, use, and territorial dynamics. Recent work, however, has addressed this gap by emphasising the active production of commons through spatial arrangements, place-based practices, and evolving social relations (Felstead et al., 2019).

In parallel, a range of spatial design concepts from outside commons literature have engaged with shared spaces, including those in residential contexts. Concepts such as 'placemaking' address the co-creation and social life of public and semi-public spaces (Aravot, 2010), while models anchored in co-housing and co-living (Vestbro, 2000) have long concerned themselves with form, use, and spatial arrangement. Research on housing clusters has demonstrated that spatial qualities such as proximity, permeability, and territorial clarity can encourage collective use, but that their effectiveness depends on how everyday practices and governance structures evolve over time. Long-term success appears to rely on the capacity of design and governance to co-adapt, supporting ongoing negotiation and adaptation among users (Lyppens, 2020).

In much of the literature on residential commons, gardens are treated as resources or programmatic surfaces, comparable to other shared spaces and installations within housing developments. However, gardens hold symbolic, cultural, experiential, and ecological dimensions that extend beyond their functional role. From a landscape architecture perspective, there remains a gap in the exploration of residential commons through the garden as a central object of inquiry. This perspective offers a richer engagement with questions of form, use, spatial perception, sensorial experience, scale, and temporality, examined alongside practices of commoning and shared living. Addressing this gap presents an opportunity to connect residential commons with the disciplinary core of landscape architecture, treating gardens as evolving, situated landscapes.

By approaching shared gardens as residential commons, this research repositions the garden as a fertile site for exploring the spatial and social dynamics of commoning in settings where ecological processes are at play, bridging disciplinary boundaries and opening new ground for both practice and reflection.

1.2.3 The rise and sprawl of shared gardens in housing developments

The contemporary interest in shared residential gardens is not a novel phenomenon. It has emerged in relation to wider shifts in housing policy, urban design, and changing attitudes toward collective living and environmental stewardship. To better understand the socio-spatial role of shared gardens today, it is helpful to trace their historical precedents, highlighting how they have responded to — and helped shape — changing urban conditions. The emergence and proliferation of shared residential gardens cannot be separated from broader developments in housing, urban planning, and societal attitudes towards collective living. While present in various parts of the world, their forms and functions vary according to cultural, spatial, and historical conditions.

In Europe, shared gardens were already present in 19th-century utopists housing, in the central kitchen houses from the beginning of the 20th century, as well as in the many modernist exemplars of collective houses (Vestbro & Horelli, 2012). They became especially popular during the co-housing movement in the 1970s and the 1980s, which attracted people interested in living in communities and seeking direct and daily contact with nature. Nowadays, realized sometimes through residents' initiative, contemporary models of co-housing combine the practicality of living in the inner-city with the benefits of suburban life, with shared spaces for children and social interaction (Tummers, 2016) — which makes the shared garden a pivotal component of this housing model. (Figure 1.2)

In the Netherlands, shared spaces in residential areas have existed since the pre-industrial period. At the time, consciously created enclosures — *hofjes* — provided entrances to the many rooms in orphanages and elderly homes (Figure 1.3). After giving space to alleviate the housing pressure of the 19th century, open spaces in housing developments regained strength with the Housing Act in 1902, having been linked to improved health and life quality. The traditional *hofjes* were re-interpreted as communal gardens in the worker's housing and shared green spaces proliferated inside and outside the boundaries of residential lots (Floet, 2021; Grinberg, 1977).



FIG. 1.2 Shared residential gardens in Europe since the 19th century (from top to bottom): a) utopists housing — Le Familistère de Guise, France, 1859 (Frères, 1899), b) early 20th century central kitchen houses — Hemgården, Sweden, 1907 (Blomberg, 1908), c) 30's-60's modernist housing - John Ericssonsgatan 6, Sweden, 1935 (Adapted from Halme, 2020), d) 70's-80's co-housing movement: Tinggården, Herfølge, Denmark, 1978 (Adapted from Vandkunsten, n.d)



FIG. 1.3 Dutch *hofje*: Begijnhof, Spui, Amsterdam (Munson, 2007)

Since the 1970s, the growing demand for owner-occupied housing antagonises the descendant housing stock, which is partly a reflection of the low availability of land in urban centres and in the vicinities of the larger cities (Vermeulen & van Ommeren, 2009). Between the 1970s and 2000, the Dutch Randstad metropolitan region witnessed the implementation of public policies for compact urbanization (Geurs & Van Wee, 2006). Since the mid-1990s, gardens belonging to single-family houses have decreased in frequency and size (Kullberg, 2016). The shared garden has enabled the incorporation of green into new housing developments, either within consolidated urban areas or in outskirts neighbourhoods. Nowadays, 8 per cent of households state they have access to some sort of shared garden near their homes, of which only a third have their own private garden (Kullberg, 2016).

Combinations of individual and shared gardens appear most commonly in the most recent Dutch models of co-housing, which mix the appeal of living close to nature in a sustainable way with modern concepts such as the 'sharing economy' (Tummers, 2016). Existing housing developments have also been adapted to receive shared gardens, whether on rooftops or through the conscious obliteration of individual gardens on the initiative of the homeowners. (Figure 1.4)



FIG. 1.4 Wallisblok, Spangen, Rotterdam-NL, where individual gardens from the 1930s gave way to a shared garden after renovation in 2005-7 (Blankestijn, 2018)

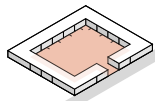
In highly urbanised regions where the ‘compact city’ agenda is promoted, residential gardens that are private and attached to individual dwellings appear less frequently in new housing developments (Jakobsson & Dewaelheyns, 2018). As public spaces do not provide an equivalent substitute for residential gardens (Coolen & Meesters, 2012), shared gardens increasingly emerge as a viable alternative to preserve or enhance liveability and access to green space in high-density housing contexts (Kotulla et al., 2019). This tendency coincides with the renewed interest in cooperative and collectively organised housing models, which are often associated with shared spatial resources and collective forms of living (Tummers, 2016). At the same time, growing housing affordability pressures, particularly in urban regions, have intensified debates around alternative and collective forms of housing provision (OECD, 2021). In this context, shared residential gardens can be understood as part of a broader shift towards more collective living arrangements, a trend likely to intensify given projected urbanisation levels of 87 per cent in Western Europe and up to 97 per cent in the Netherlands by 2050¹ (UN DESA, 2019).

¹ The United Nations uses the terms ‘city’ and ‘urban’ area interchangeably. The percentages refer to the projection of in-habitants living in cities, considering urban growth due to natural population increase, migration, and reclassification — i.e., currently rural areas that are expected to become urban in the future.

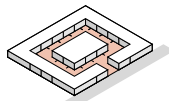
Pre-industrial period
(before 1800)

Industrialization & urbanization

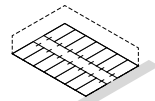
Housing Act (1902)



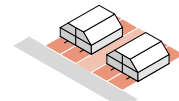
hofes



occupied *hofes*
(by speculators)

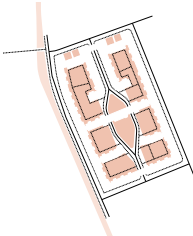


common entrance housing
(by industrialists)

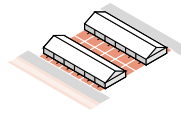


Agneta park, Delft
(worker's housing, 1885)

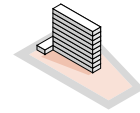
1920-1990s



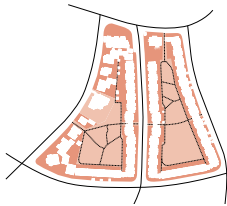
Justuskwartier, Rotterdam
(municipal housing, 1919-21)



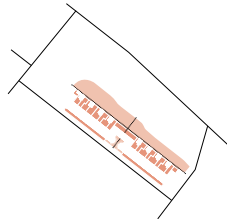
Vreewijk, Rotterdam
(by Berlage, 1916-19/1933)



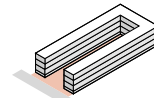
Bergpolderflat, Rotterdam
(housing association, 1922-34)



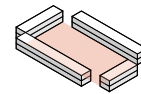
Tuinwijk Zuid, Haarlem
(housing association, 1919-22)



2e Scheepvaartstraat, Hoek van Holland
(municipal housing, 1924-27)



Vroesenlaan, Rotterdam
(by De Eendracht, 1931-34)



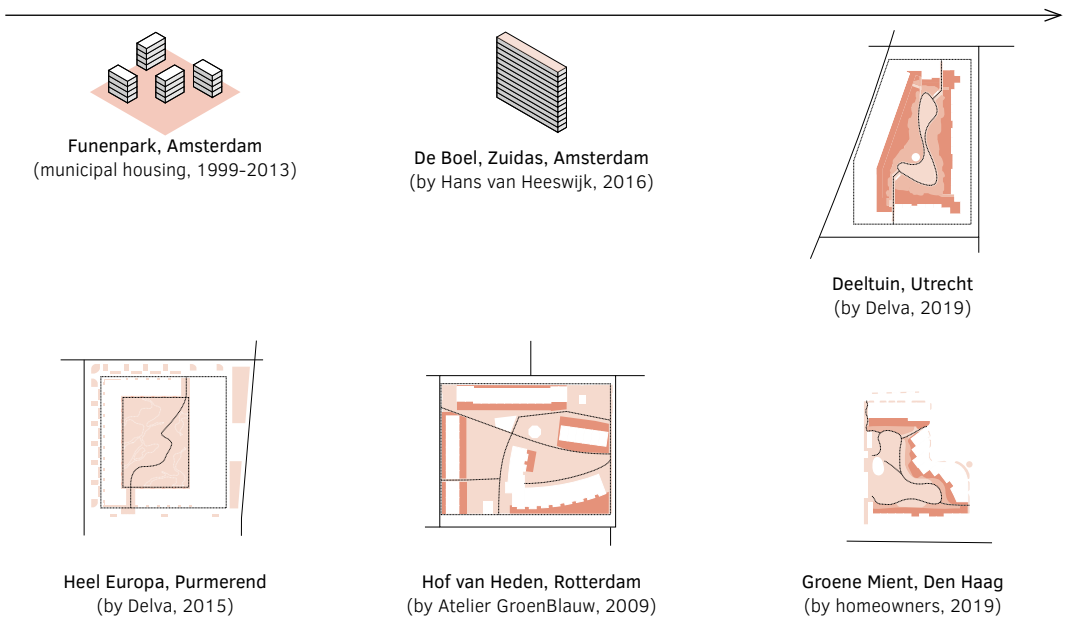
Frankendael, Amsterdam
(municipal housing, 1950-60)

FIG. 1.5 Non-exhaustive selection of Dutch housing developments with shared open spaces, identified through a non-systematic review of historical precedents (Grinberg, 1982) and supplemented with contemporary cases from professional publications. The figure provides an illustrative overview of recurring spatial arrangements over time.

1910-1920s



2000s



housing typology / project name, location
(initiator / known designer, year)

street axis ——— ++ individual
pathway axis - - - - - ++ shared



From utopian communities to modern co-housing initiatives, shared residential gardens have evolved alongside changing urban priorities and socio-spatial ideals (Figure 1.5). In contemporary high-density settings — where private gardens are increasingly unfeasible — they offer a viable alternative for integrating green space into everyday life. Their growing presence in recent housing developments reflects not only a practical response to spatial constraints, but also a broader shift toward more collaborative and ecologically attuned forms of urban living. In this light, shared gardens can be seen as part of the rising popularity of residential commons, collectively used and governed spaces embedded within the domestic realm. As such, they offer fertile ground, both literally and conceptually, for exploring commoning practices in residential contexts from a landscape architecture perspective.

1.3 Landscape transformation as an investigative lens

This section explores the potential of landscape transformation as an investigative lens for understanding shared residential gardens as sites of commoning practices and evolving social — ecological dynamics. In these settings, transformation often unfolds through everyday processes, cyclical rhythms, and the gradual accumulation of small-scale events — revealing how humans and non-humans continuously co-shape, co-adjust, and co-inhabit space over time. Attention to these patterns not only supports understanding of change but also offers a foundation for cultivating it.

1.3.1 Leveraging small-scale events to cultivate change in shared residential gardens

The landscape is in a perpetual state of transformation, unfolding across the tapestry of time. As Fernand Braudel (1902-1985) suggests, there are three distinct levels of time. The first level is *la longue durée* (the long term), where change moves slowly, almost imperceptibly. It is the time of geography, climate and the enduring socio-economic currents that carve the landscape over centuries or millennia. The second level, *le conjoncture* (the medium term), reflects the ebb and flow of social, cultural, and political trends that emerge over several or many decades. It encompasses more

visible and tangible economic and political trends and social movements that echo the shifts within the Anthropocene. The third level is *l'événement* (the short term, or simply, events), which captures fleeting moments within the span of just a few years, or a single generation. It encompasses political upheavals, or specific historical events that take place in the fastest rhythm of time (Braudel, 1980).

Braudel most explicitly associated natural processes with the *longue durée*, treating environmental conditions as deep, slow-moving structures that constrain and shape human possibility over time. Yet ecological processes, just like social ones, unfold across all temporal levels. Phenomena such as droughts and floods affect landscapes in the medium or short term, while also intersecting with human activities. Both social and ecological rhythms — such as the changing of seasons, the lifespan of plants and people, or daily routines of human and non-human actors, may all be understood as events when viewed from a contemporary landscape perspective. These layered interactions remind us that the landscape is never still, but in continuous negotiation between scales and temporalities (Burchardt, 2024).

As short-term events exert meaningful influence, so too do the everyday changes that shape lived environments — shifting social practices, evolving worldviews, changes in community life, or the quiet accumulation of spatial adjustments. While each individual change may appear trivial or insignificant, the cumulative effect of these 'micro-events' over time can be substantial. They are part of recurring cycles influenced by similar events, creating a predictable rhythm of change that mirrors the cyclical nature of human life. As a whole, these incremental changes reflect the lived experiences of a particular generation, embodying shifting societal values and needs. In this sense, the landscape serves as a medium through which humans express an 'expanded concept of self' (Thwaites, 2000), and its transformation becomes a record of how environments are adjusted to meet human needs and values. These changes, embedded in the context of everyday life, represent a distinct form of transformation, one rooted in personal and collective experiences, rather than in grand historical narratives.

However, humans are not isolated entities affecting the landscape, and humanistic discourses can seem out of place in today's perspective. Triggered by the pressures of climate change and environmental concerns on one hand, and the paradigm shift in human-nature relationships on the other, the current worldview recognises the ontological interconnectedness of humans and nature (Escobar, 2015).

Humanity is 'a planetary force of change' in the Anthropocene (Crutzen, 2002), where humans are actants within a complex system involving the non-humans. Human sub-systems are commonly referred to as social systems, where the term

'social' encompasses the aspects inherent to human activities and behaviours, as well as society and its organization, including those of cultural, spiritual, economic, and political nature. Non-human sub-systems are typically called ecological systems, where 'ecological' refers to the relationships between living organisms and their environment, incorporating both living and non-living components such as soil, water, and climate. (Binder et al., 2013) In this context, both the built environment — comprising human-made or modified landscapes, structures, and infrastructure — and the ecosphere exist as 'self-producing systems'. Thus, built environments, such as shared residential gardens, are viewed as social-ecological systems, where resources are extracted from and returned to the ecosphere through ongoing cycles. (Moffatt & Kohler, 2008)

The learning potential in exploring micro-events through today's lenses lies in understanding humans as integral components of the social-ecological systems we inhabit, where humans' influence on their environment cannot be isolated from non-humans. This perspective underscores how humans and non-humans interact and negotiate while coexisting within shared living spaces.

Both human systems and ecosystems evolve in ways that retain patterns across generations, shaped by universal human behaviours and cyclical ecological dynamics (Berkes et al., 2003; Holling et al., 2002). The outcome of this constant negotiation between human and non-human actants is unavoidably imprinted in the physical space. However, the drivers and processes behind specific changes may not be immediately apparent.

Such an understanding prompts a reconsideration of how spaces such as shared residential gardens evolve through the interplay of social and ecological dynamics, and how recurring changes become part of their ongoing life. As Hunt (2004) notes, gardens have an 'afterlife' that extends beyond their original spatial-temporal context, with meanings and uses continually reinterpreted over time.

Recognising this ongoing life invites a design approach that embraces transformation as a constant to be designed for — in other words, strategies to cultivate change as an inherent part of a garden's trajectory.

1.3.2 Unravelling ability to cultivate change

The idea of adjusting design to accommodate changing user needs is not new. It is rooted in modernist architectural ideals, which sought optimised layouts and modular systems for mass housing production. This early embrace of adaptability is evident in Le Corbusier's concept of *plan libre*. Open plans promoted multifunctionality and convertibility, allowing spaces to shift across life stages and support needs through combinations and divisions. Over time, this evolved into a more dynamic conception: transformability, in which time becomes a design dimension. Here, interior layouts change throughout the day using folding walls or sliding partitions, turning three-dimensional space into four-dimensional experience. Later housing would open entirely to its surroundings and even become mobile, thanks to portable and autonomous systems (Magdziak, 2019). With growing concerns over material efficiency and lifecycle impact, architects have since introduced strategies for designing for disassembly and long-term adaptability. Prefabricated modular systems are now seen not only as efficient but also as flexible frameworks capable of supporting future functions, prolonging building lifespan while reducing demolition and waste (Mlote et al., 2024).

More recently, architectural theorists have questioned whether adaptability can be achieved through attempts to predict all necessary modifications. Instead, attention has shifted towards identifying what remains constant and using this permanence as a framework for adaptability. Leupen (2006) articulates this as the distinction between the 'frame' that carries architectural character and the 'generic space' that remains open to reconfiguration. Here, the freedom to change is made possible by the stability of an organising structure. While this model suits architectural agendas, its translation into landscape architecture is partial: although the notion of the frame has gained some traction, the concept of generic space resonates less in a discipline where experience, aesthetics, and socio-ecological function are central concerns.

Change is intrinsic to landscape architecture, yet not every future scenario can be anticipated. This gives rise to open-ended designs that enable transformation over time. In exploring urban interstices, Luo (2021) proposes four key principles for open-ended landscape design: situated uncertainty, in which long-term outcomes unfold through ongoing interactions among humans, non-humans, and the material landscape; temporal openness, where design is conceived as a framework rather than a fixed form; process-based thinking, which focuses on shaping conditions and relationships over time; and co-agency, whereby humans and non-humans are active participants in shaping landscape outcomes. Design, in this view, serves as a catalyst for transformation.

This ethos aligns with Raxworthy (2018) call for a landscape architecture that works with change rather than against it. Through his concept of the 'viridic', Raxworthy proposes a design language grounded in plant growth as living transformation. Drawing from gardening, he frames maintenance as a real-time, reactive practice that allows plants to influence spatial form in ways that exceed what can be anticipated in design. By foregrounding growth itself as the medium, the viridic displaces design's reliance on prediction and representation, favouring observation, calibration, and situated response (Raxworthy, 2021).

The concept of cultivating change in landscape architecture thus moves beyond conventional notions of flexibility. It encompasses both the agency of non-human actors and the unpredictability of social practices. While unpredictability is inherent to open systems, this does not preclude a certain degree of foreseeability. In shared residential gardens, some transformations associated with the viridic can be anticipated, such as plant succession, shading effects, and shifts in spatial atmosphere. Likewise, social systems often evolve in patterned ways, offering partial insights into future needs: family life cycles, ageing populations, and collective rituals. Yet both social practices and ecological conditions are also subject to rupture and surprise: stewardship may falter, preferences may shift, and a dry summer or a sudden pest infestation may radically alter the vegetation structure.

Acknowledging these dynamics calls for a perspective that accommodates both the predictable and the unpredictable, both the socio-cultural and the ecological. In this research, cultivating change refers to the intentional shaping of environments in ways that respond to foreseeable shifts arising from interactions among humans, non-humans, and physical space. This does not imply determining outcomes in advance, but rather creating spaces that support adaptive use and shared learning over time, while also reducing preventable user-led modifications. In doing so, it ensures the long-term viability of shared residential gardens without necessitating continual redesign.

Ultimately, cultivating change is not only a design strategy but also a contribution to sustainability. When shared gardens are conceived to accommodate transformation, both time and resources are conserved — a vital concern given the environmental cost of built environments. Design that cultivates change reinforces the relevance of the designer as facilitator of future growth, open-ended interaction, and embedded care.

1.4 Problem statement

This research explores shared residential gardens through three interrelated dimensions: as concentrated expressions of landscape architecture, as environments in flux, and as settings that catalyse interaction among humans, non-humans, and the physical environment. Together, these aspects invite an exploration of landscape transformation within the context of everyday commoning practices, where spatial, social, and ecological dynamics are entangled and continuously evolving.

Regardless of scale or timeframe, tracking change in urban landscapes remains a persistent challenge. Shared residential gardens, however, offer a condensed setting for examining social-ecological interaction, acting as microcosms of broader landscape dynamics. In these environments, change is more readily observed and documented due to established procedures, repeatable patterns, and the presence of multiple informants able to recall and register small-scale events, facilitating the tracing of their 'complex timescapes'.

Shared residential gardens are also treated as sites of commoning — spaces that, while rooted in domestic life, are collectively used, governed, and reshaped. These gardens serve as both stage and medium for interaction among humans and non-humans, with visible consequences for the garden form. Their scale, temporal layering, and everyday embeddedness offer a unique empirical ground for observing how transformation unfolds and how governance and design interact over time. This framing also creates room to address the spatial implications of urban residential commons from a landscape architectural perspective.

This research frames landscape transformation as a lens through which to derive insight for cultivating change by design. This requires seeing change as a continuous, situated, and often cyclical process. Yet studying such processes presents challenges: the interdependence between design and governance remains underexplored in both research and practice, where these domains are often approached in isolation. Understanding how design composition and collective governance shape one another while ecological dynamics continue to unfold calls for an integrative and grounded approach.

This section lays the groundwork for investigating change in shared residential gardens by identifying the conceptual and methodological challenges that arise at the intersection of design and governance.

1.4.1 Identifying challenges

On garden design

Garden design entails creating spaces through incorporation and synthesis of the landscape complexities into a cohesive composition (Aben & De Wit, 1999), which remains in flux. In this sense, the composition itself is never static; it serves as a framework for ongoing stewardship, and negotiation. Over time, multiple compositions may emerge, each reflecting successive interactions among human and non-human actors.

The garden's resulting perceived space is difficult to delimitate, as it often 'borrows' the external landscape (Seddon, 1997). Its boundaries are also continually shaped by natural and built elements subject to seasonal cycles, growth, wear, and decay, while often mediate between public and private, inside and outside. In shared gardens, this complexity is heightened by the presence of multiple households, whose everyday actions, intentional or not, directly impact the garden's physical and experiential dimensions. (Figure 1.6)



FIG. 1.6 Inside × outside: Kassenhof, Lanxmeer, Culemborg, where the conservatory functions as a transition space between house and garden (left), and Heel Europa, Weidevenne, Purmerend, where external galleries narrow the relationship between apartment residents and the collective garden (right).

On garden governance

The governance of shared residential gardens involves both formal and informal interactions among a wide range of human actors (e.g., residents, tenants, visitors, associations, third parties) and non-human actors (e.g., such as plants, water, animals, soil, and weather) organised across multiple levels. These actors, both stewards and non-stewards, constantly influence one another while the steward community collectively manage the garden's resources and spaces located across individual, collective, and public terrain.

As in any organization, interactions happen either at the same level or between levels (Van Popering-Verkerk & Van Buuren, 2016). Specially in residential gardens, many of the interactions happen informally, with no documented procedures or written policies to guide them. Garden governance becomes increasingly complex with size, when more actors and factors come into the picture. (Figure 1.7)



FIG. 1.7 In Hof van Heden, Hoogvliet, Rotterdam (left), sheds and fences were added at the boundaries between private and shared gardens, although they had originally been designed for integration. In Groene Mient, Vruchtenbuurt, The Hague (right), a pathway leading to a private garden was left to nature and reshaped by the agency of soil, rainwater, and growing vegetation.

On the interplay between design and governance

Design and governance are co-constitutive: the garden's composition can support or constrain interactions and collective decision-making, just as governance practices continuously reshape the garden's composition. Pathways, thresholds, structures, and spatial hierarchies all carry implications for how residents organise stewardship and manage collective use (Veras Morais et al., 2022). In turn, stewardship decisions are imprinted in garden's composition. As such, design and governance must be understood not as separate domains, but as entangled forces in the making of residential commons. (Figure 1.8)



FIG. 1.8 Groene Mient, Vruchtenbuurt, The Hague, where a belt of wadis and mounds frames the collective space and marks the boundary with the private realm. This spatial nesting has shaped how gardening and maintenance are organised: individual gardens are tended by each household; hedges, mounds, and wadis by adjacent residents; and green roofs, lawns, and other plants collectively during community gardening days.

1.4.2 Framing the research

This research takes up the challenge of investigating residential commoning as a situated and evolving process in shared gardens, by attending to:

- The interfaces between social and ecological processes;
- The iterative garden composition across time;
- The fluidity of garden boundaries and the inside-outside continuum;
- The role and qualities of human and non-human actors and their interactions, regardless of intentionality;
- The many types of ownership and levels of accessibility, as well as both written and unwritten policies;
- The mutual shaping of garden design composition and garden governance;
- The multiple levels of complexity involved in shared living environments of different sizes.

In response to these aspects, this research investigates landscape transformation in shared residential gardens, as expressed through changes in their composition over time. These challenges also highlight the complexity of studying change itself. To meaningfully harness insights from transformation processes and apply them to design, it is necessary to explore the dynamics of change as they unfold — not as isolated events, but as layered, situated interactions. This involves not only identifying where and when change occurs, but also what exactly changes within the garden composition. Equally important is uncovering the underlying drivers, how changes come about, and who is involved or affected. Attending to all these dimensions is essential for informing design approaches that accommodate, respond to, and cultivate change within the context of shared residential gardens as spaces of commoning and evolving social-ecological dynamics.

1.5 Research questions

The main question of this research is:

How can insights from landscape transformation in shared residential gardens inform the design of residential green commons that accommodate evolving social-ecological needs?

By attending to the evolving nature of these gardens, this research seeks to uncover patterns in their change dynamics. These insights aim to support the formulation of design approaches that remain relevant throughout time, without requiring complete user-led transformations. In doing so, the research contributes to the long-term viability of residential green commons and to a more integrated understanding of the interactions between human and non-human systems in residential environments.

This overarching question will be explored through the following three sub-questions:

- 1 How can methods for analysing design composition, actors, and interactions be integrated to investigate change in shared residential gardens over time, while accounting for social and ecological interconnections?**

Landscape research offers established methods for analysing design composition, but these approaches must be adjusted to accommodate a diachronic perspective that tracks changes over time. Similarly, traditional governance analysis methods, such as stakeholder analysis and the study of decision-making processes, are valuable for examining human actors, their roles, and interactions. However, these methods must be expanded to account for non-human actors, recognising the significant role that environmental and ecological factors play in shaping space alongside social dynamics. The aim is to integrate methodologies for analysing design composition, actors, and interactions into a unified framework, enabling a comprehensive exploration of the social-ecological dynamics involved in the small-scale events that shape shared residential gardens.

2 What compositional changes, along with their drivers, processes, and temporal-spatial characteristics, underpin the evolution of shared residential gardens over time?

It is not only necessary to identify *where* the garden changed over time, *what* aspect of the composition changed, and *when* it happened, but also to understand the specific factors driving these changes (*why*), the way they occur (*how*), and the human and non-human actors involved or affected (*who*). These changes often result from both intentional interventions and unintentional modifications — the latter sometimes emerging through gradual use or biophysical processes. Identifying the key drivers and processes can offer valuable insights into patterns of transformation within these spaces, illustrating how the interaction between human and non-human systems shapes the ongoing evolution of the garden's composition.

3 What principles can be formulated to cultivate change through the design of residential green commons?

Insights gained from identifying key compositional changes and understanding their underlying drivers and processes require translation into actionable design principles. These principles are grounded in the specific context of the studied shared residential gardens, reflecting the spatial and governance dynamics unique to each case. Through careful reflection and validation, however, they can be framed in a way that allows broader application and adaptation across other residential commons and related domains of landscape architecture. In this way, the research generates not only situated design knowledge, but also a transferable set of principles for cultivating change in collectively governed urban green spaces and shared landscapes more broadly.

1.6 Researching transformation in shared residential gardens

This section outlines the research approach adopted to investigate transformation in shared residential gardens. It begins by detailing the overarching strategy — qualitative, constructivist, and ethnographic in nature — followed by a description of the selected research sites and their significance to the research questions. Then, it presents the methods used to collect, process, and analyse data, including the iterative development of a methodology for analysing change in time. Finally, it clarifies the scope of the research and its relevance for both academic discourse and broader societal contexts.

1.6.1 Strategy

This research adopts a qualitative strategy to explore change in shared residential gardens. Qualitative research enables a holistic investigation of specific problems or contexts, making it especially suitable for addressing complex and layered phenomena that resist quantification (Creswell, 2009).

Grounded in a constructivist perspective, the study employs field research as its primary strategy of inquiry. Constructivist approaches acknowledge the researcher's positionality and prior knowledge, positioning them as an active participant in formulating questions, interpreting findings, and constructing meaning in collaboration with those involved (Charmaz, 2006). Field research entails the systematic study of phenomena as they unfold in real-world settings, requiring direct engagement with the contexts under investigation. It is particularly effective in situations where knowledge is emergent and context-dependent, shaped through situated interactions and ongoing processes (Ven & Poole, 2017).

An ethnographic approach underpins this strategy. Ethnography offers an immersive, long-term perspective on how people interpret, inhabit, and negotiate their environments. Through extended observation, participation, and dialogue, the researcher gains insight into the practices, relationships, and meanings that define daily life. This approach foregrounds the subjective and contextual nature of knowledge production, making it particularly valuable for understanding lived experience, informal forms of organisation, and everyday interactions that might elude more structured methods (Hammersley & Atkinson, 2019).

This strategy enables direct engagement with the gardens in their lived contexts, supporting field-based data collection while incorporating the perspectives of both users and the researcher. This site-specific and multi-perspective character is essential for tracing spatial transformation and formulating design principles through interpretation. It also supports an iterative, bottom-up process in which data from multiple gardens are continuously compared, reflected upon, and refined. Finally, this strategy allows for the concurrent development of a tailored methodology for analysing garden composition, actors, and interactions — continuously tested and adjusted throughout the research process.

1.6.2 **Research sites**

Investigating change in shared residential gardens, requires developing and applying a methodology for analysing design composition, actors, and interactions over time, after which insights are translated into design principles that cultivate change.

The **EVA-Lanxmeer project** serves as the primary site for data collection, iterative methodological development, and in-depth analysis, directly contributing to research sub-questions 1 and 2. Located in Culemborg, Gelderland Province, in the central-eastern Netherlands, this ecological residential neighbourhood features communal courtyards that play a central role in its urban development plan. The area currently comprises 16 shared gardens, the earliest established in 2000 and the most recent in 2021.

Lanxmeer was selected for several reasons. First, it offers multiple gardens situated within similar urban and landscape contexts, subject to the same regulations aligned with ecological and permaculture principles. While many gardens are comparable in size, their compositions differ, having been designed with varying degrees of professional involvement. This internal diversity provides a consistent framework that allows the research to focus on the dynamics of change rather than external variables.

Second, the temporal distribution of the gardens offers valuable insight. Nine of the 16 gardens were realised over 20 years ago, allowing sufficient time for meaningful transformations to have occurred. The neighbourhood also includes newer gardens, enabling real-time investigation of early changes, while allowing comparisons with developments in older gardens.

Third, the spatial structure of the neighbourhood is highly integrated, consisting of multiple shared gardens, cared for by residents, interconnected with public spaces. The transitions between public, semi-public, and private spaces are intentionally blurred, creating a spectrum of ownership and accessibility that allows for nuanced exploration of stewardship and spatiality.

Fourth, the shared gardens are collectively owned and autonomously governed. Ownership is divided between homeowners and housing corporations, with interfaces to individually owned and municipal land. Management is carried out by the steward community through formal and informal arrangements involving multiple entities and third parties. This autonomous governance ensures a high degree of decision-making power and responsibility over compositional change.

To support cross-site validation and generalisation, two additional research sites were selected: **De Kersentuin** and **Vrijburcht**, representing medium and small levels of complexity, respectively.

De Kersentuin, a medium-sized residential area, comprises eight garden sections arranged in pairs across five housing rows. Ranging from soil-bound to terrace gardens, they occupy a mix of collectively owned and municipal land. Regardless of ownership, the steward community is responsible for their development and upkeep, supported by the municipality. Designed by landscape architect Hyco Verhaagen (then a member of Copijn Utrecht), the gardens have been gradually realised since 2003.

Vrijburcht, the smallest case, includes a single shared garden enclosed within a communal living-and-working complex on a reclaimed island (Steigereiland) east of Amsterdam. Designed through a participatory process led by VLUGP Stedebouw en Landschapsarchitectuur, the project was completed in 2007 through collective private ownership (CPO) in collaboration with the municipality. The lead landscape designer, Menno Vergunst, remains a resident and active member of the community.

Both De Kersentuin and Vrijburcht were realised approximately two decades prior to their inclusion in this research, allowing time for social–ecological and commoning practices to evolve, and for steward communities to reflect on their transformations.

These two additional cases were examined using the same analytical methodology developed from the Lanxmeer study. Their analysis served to verify whether the patterns and processes identified in Lanxmeer could also be observed — or diverged — in other contexts. In doing so, they contributed not only to validating and refining the findings, but also to addressing the third research sub-question, which focuses on the formulation of design principles for residential green commons and their broader generalisation. (Figure 1.9)



FIG. 1.9 Satellite images of the primary research site, Lanxmeer in Culemborg, Gelderland (left), and the two additional sites, Kersentuin in Leidsche Rijn, Utrecht (centre) and Vrijburcht in Steigereiland, Amsterdam, North Holland (right). The images highlight differences in scale, reflecting the varying levels of complexity across the sites. (Adapted from Google, 2025b, 2025c, 2025d)

1.6.3 Methods

The following paragraphs provide an overview of the methods used to address each of the research sub-questions. (Figure 1.10)

1 How can methods for analysing design composition, actors, and interactions be integrated to investigate change in shared residential gardens over time, while accounting for social and ecological interconnections?

To investigate how garden design composition changes over time, a diachronic compositional analysis was developed by adapting the formal analysis method established in the Landscape Architecture section at TU Delft. This layered approach distinguishes four interrelated forms: basic, spatial, programme, and image. The adaptation introduces the use of multiple timeframes and a schematic mode of representation. Each garden was analysed across at least two timeframes — original design (TO) and current condition (TC) — with additional moments added when relevant. The four forms were broken down into key aspects and diagrammed consistently to allow cross-case comparison.

Analysing actors' properties over time required adapting stakeholder analysis techniques to include non-human actors alongside human ones. The method unfolds in three steps: first, actors are identified and characterised by their level of operation and available resources; second, a modified power–interest–influence grid is applied across two timeframes — TO and TC — to assess shifts in agency and relationships; third, actor participation in garden transformation is mapped, distinguishing between direct and indirect modes of involvement. This sequential approach reveals how different actors contribute to garden governance and spatial transformation, supporting an integrated understanding of design–governance interplay.

To investigate how human and non-human actors interact in shared residential gardens, this research expands traditional analyses of decision-making processes to include both formal and informal, planned and spontaneous interactions. Drawing on insights from process management and network governance, the adopted approach includes verbal, non-verbal, distributed, and iterative exchanges that influence the garden's composition. It also distinguishes interactions taking place vertically (between levels of operation) and horizontally (on the same operational level). It consists of a two-strand analytical approach: one tracing formal procedures that encompass planned and reactive interactions, the other capturing both verbal and non-verbal informal interactions.

Altogether, these methods enable an understanding of compositional changes, the properties of human and non-human actors over time, and how they interact within the garden environment. A content analysis was developed in parallel, evolving in dialogue with these analytical strands. It aimed to identify key changes in the gardens over time, including their processes, motivations, timeframes, altered compositional forms, and the human and non-human actors involved or affected.

Content analysis is a systematic and flexible method for organizing and interpreting unstructured data by identifying and categorising patterns and themes within textual and visual material. It enables researchers to draw inferences by applying context-sensitive, structured coding procedures. It is well-suited to qualitative and interpretive approaches, and especially valuable for uncovering both explicit (manifest) and implicit (latent) meanings in data. (White & Marsh, 2006)

The method involves assigning descriptive labels — or codes — to segments of content, grouping these codes into categories, and later deriving themes and patterns through interpretation. An abductive coding process was applied, combining preliminary theoretical ideas with sensitising concepts drawn from the compositional, actor, and interaction analyses. These concepts were revised and expanded through

ongoing engagement with the data, while insights from the content analysis, in turn, informed the refinement of the diachronic composition analysis and the deepening of the actor and interaction analyses.

The analytical methodology was iteratively developed and tested in Lanxmeer through a series of trials conducted in parallel with data collection, leading to the establishment of the final approach. The resulting framework integrates a content analysis focused on change with design and governance methods — namely, the diachronic composition analysis and the analyses of actors and interactions. Details of the methodology are presented in **Chapter 2** of this dissertation.

2 **What compositional changes, along with their drivers, processes, and temporal-spatial characteristics, underpin the evolution of shared residential gardens over time?**

Lanxmeer was used as primary research site. The analytical methodology (diachronic compositional analysis, actors and interaction analyses, content analysis focusing on change) was applied to the selected 14 shared gardens, across which primary and secondary data were collected and processed.

Primary data were collected through on-site interviews and observations. The interviews consisted in two parts. First, semi-structured interviews were conducted according to an open script, in which key informants — such as community representatives and designers — were asked to talk about the history, development, and transformation of the gardens, as well as the actors involved. These would take place either in the respondent's house, or somewhere in a fixed spot in the garden itself. When possible, the garden plan was used to facilitate the conversation. After that, walk-along interviews were conducted in which residents could illustrate their stories, pointing to specific locations on site. Frequently, respondents would recall other stories while walking in and around the gardens, responding to emergent questions from the researcher. Less frequently, interviews were conducted entirely while walking along the garden. When permitted, interviews were recorded. Transcripts were automatically generated and later reviewed for accuracy. For interviews where recording was not allowed or feasible, detailed reports were created based on written notes taken during the conversation. An interview was also conducted with the landscape architect Hyco Verhaagen, who designed several of the gardens in Lanxmeer. This was conducted online, as the respondent is currently based outside the country.

Observations were conducted twice per garden. In some cases, participatory observation was carried out, with the researcher taking part in gardening activities with residents. During these sessions, field notes were taken on the garden's composition and the involvement of various actors, often complemented by informal conversations with residents, users, and passers-by. Serial photographs were taken along one or more routes, depending on each garden's layout. After each visit, reports were compiled, combining field notes and photographs.

Secondary data collection included gathering background information about the gardens and their context, as well as cartographic data. Background information covered project timelines, original design plans and sketches, resident profiles, and the involvement of actors. This information was primarily retrieved from the neighbourhood's official website (www.lanxmeer.nl), maintained by the residents' association, as well as from open-access publications documenting the development of the neighbourhood and its gardens. Old photographs and garden plans were also obtained from residents and/or designers.

Cartographic data were essential for contextualising the landscape and urban setting of the gardens. These included historical, topographical, geomorphological, soil, water and cadastral maps, as well as satellite imagery. Georeferenced data were obtained via QGIS from the Environmental Systems Research Institute (ESRI) and cadastral maps from *Publieke Dienstverlening op de Kaart* (PDOK). For each garden, booklets were compiled, combining background information and maps into a comprehensive document.

Booklets, transcripts, and reports were processed using Atlas.ti, a qualitative data analysis software designed to organise, code, and interpret large volumes of textual and visual material. Data collection and processing in Lanxmeer took place through several cycles between January 2023 and February 2024, during which the methodology was iteratively developed and refined.

Following the Lanxmeer analysis, the same methodology was applied to the additional research sites — **De Kersentuin** and **Vrijburcht** — to conduct a cross-case comparison and examine the extent to which the results from Lanxmeer were applicable in other contexts. This comparative analysis supported the verification, refinement, and generalisation of the findings.

At each site, a preliminary interview was conducted on location with community representatives, combining a seated conversation with a walk-along session during which notes and photographs were taken. These data were complemented by publicly available information about the respective projects.

For **De Kersentuin**, a preliminary interview took place in January 2024 with a community representative, partly at the community building and partly along the gardens. Background information was retrieved from the project's website (www.kersentuin.nl), and original design materials and photographs were provided by the interviewee.

For **Vrijburcht**, an interview with lead designer and resident Menno Vergunst (VLUGP Stedebouw en Landschapsarchitectuur) was conducted in November 2023. The interview took place at the design office located within the complex, followed by a walk-along session and a moment of free exploration. Background information was retrieved from the office's website (www.vludp.nl/projecten/binnentuin-vrijburcht), and additional materials were provided from the office archive.

Field notes, interview data, and photographs from both sites were synthesised into garden reports. Supporting spatial data and satellite images from ESRI, together with cadastral maps from PDOK, were retrieved via QGIS, and booklets combining background information and cartographic data were produced. This material informed the cross-site interpretation.

All empirical materials concerning the three research sites — including booklets, interview transcripts, and observation reports processed in Atlas.ti — are openly accessible via 4TU.ResearchData (Veras Morais, 2025).

An analytical synthesis follows a cross-case comparison of the findings across gardens. Recurring patterns were identified and grouped according to what changed, when transformations occurred, which actors and processes were involved, why changes occurred, and under which spatial and governance conditions. Together, these thematic groupings made it possible to distinguish three broad levels at which transformation unfolds in shared residential gardens.

The findings from the Lanxmeer analysis are presented and discussed in **Chapter 3**, while those from De Kersentuin and Vrijburcht are examined in **Chapter 4**. The semi-structured interview and observation protocols are provided in **Appendices A and B**, respectively, and the codebook is included in **Appendix C**.

3 What principles can be formulated to cultivate change through the design of residential green commons?

An initial set of principles (guidelines) was derived from the Lanxmeer findings and tested through a **design workshop** held at TU Delft's Faculty of Architecture and the Built Environment in June 2025. Participants were divided into small groups and asked to develop design proposals informed by the proposed principles, reflecting on how these could address social–ecological needs over time. Each group appointed one member to record the discussion. The workshop concluded with a joint reflection on the applicability of the principles to shared garden design, leading to further suggestions for refinement.

The principles were subsequently evaluated and refined through a **focus group** session involving Lanxmeer residents. Held in August 2025, the session included around 16 residents, representing 10 of the 14 gardens studied. Participants were invited to respond to the principles derived from the Lanxmeer findings, discussing their relevance and feasibility within the community's everyday life. The group dialogue helped validate the findings and assess the extent to which the principles were applicable to residents' lived experiences. The focus group discussion was recorded and transcribed. The resulting transcript forms part of the dataset archived in 4TU.ResearchData (Veras Morais, 2025).

Finally, specific principles under each guideline were elaborated in light of both the particularities of Lanxmeer and their potential to be generalised to other scales and contexts. This process drew on insights from the two additional research sites, De Kersentuin and Vrijburcht, as well as on the analytical synthesis of transformation patterns derived from all cases. As an intermediate step, this synthesis informed the identification of key capacities of design and governance in relation to garden transformation. Building on these capacities, the principles articulate how recurring dynamics of change identified through the empirical analysis can inform design and governance approaches beyond the primary research site.

The elaboration of these design principles is detailed in **Chapter 5** of this dissertation, while the design workshop and focus group guides are included in **Appendices D and E**, respectively.

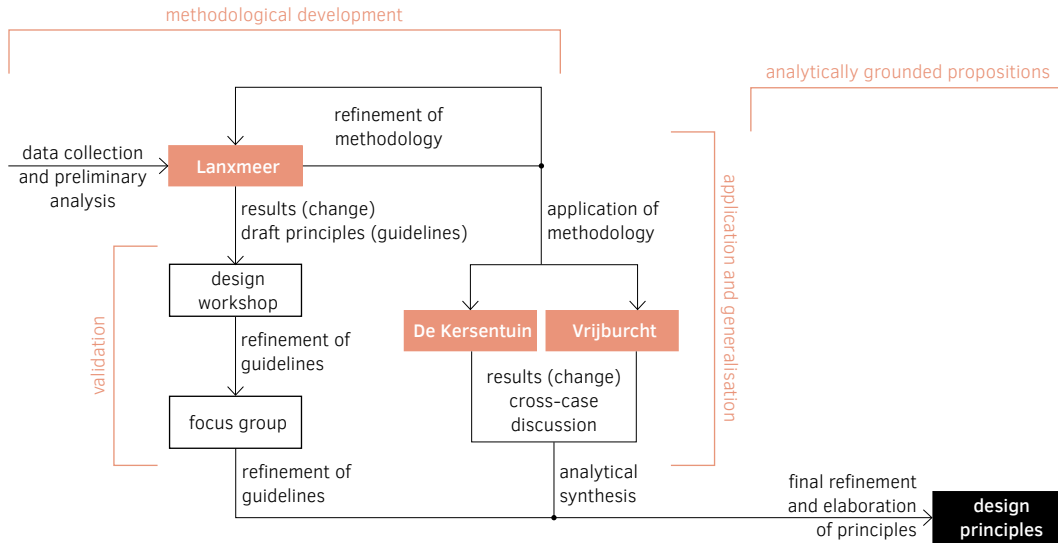


FIG. 1.10 Diagrammatic representation of the research process and the exploration of the three research sites.

1.6.4 Scope and relevance

The study addresses a research gap by engaging with the spatiality of residential green commons through a research object that remains largely underexplored in academic literature: the shared residential garden. While focusing on landscape transformation, it adopts an interdisciplinary lens, analysing garden design and governance in combination, given their mutual influence in shaping social and spatial dynamics. In doing so, the research contributes to both academic and societal domains by:

Academic relevance

- Contributing to theoretical development by engaging with the concept of commoning in urban residential landscapes, reflecting on its contested nature, and situating residential green commons within the field of landscape architecture. In parallel, the research introduces key conceptual tools related to cultivating change.
- Proposing and testing a novel analytical methodology that integrates compositional forms, actors, and interactions, while accounting for both human and non-human agency.

- Capturing and sharing local knowledge and lived experience, documenting how people design, maintain, and govern their shared gardens over time.
- Balancing disciplinary emphases by addressing the humanistic approaches in relation to ecological ones in landscape architecture, offering a framework that acknowledges the complex relationships between humans, non-humans, and the built environment.

Societal relevance

- Generating knowledge on post-occupancy dynamics of shared gardens in housing developments, contributing to ongoing conversations in planning, architecture, and community governance.
- Contributing grounded design knowledge by formulating design principles for residential green commons based on empirical, diachronic analysis.
- Supporting more sustainable housing environments by reducing the need for complete user-led transformations and fostering a deeper mutual understanding between human and ecological systems.

1.7 Dissertation outline

This dissertation is structured across six chapters. **Chapter 1** introduced the theoretical, contextual, and methodological foundations of the research. It was preceded by a **Glossary** that defines key terms and concepts as they are understood and used throughout the dissertation. Together, these two sections lay the groundwork for the chapters that follow. (Figure 1.11)

Chapter 2 presents the integrated analytical approach, which combines diachronic compositional analysis with actor and interaction analysis, and includes the coding of change through content analysis. It addresses the question: *‘How can methods for analysing design composition, actors, and interactions be integrated to investigate change in shared residential gardens over time, while accounting for social and ecological interconnections?’* (RQ1).

Chapter 3 presents the analyses conducted at the main research site, Lanxmeer, followed by findings from the 14 selected gardens within the neighbourhood. The project is examined through a series of analytical layers, beginning with its overall implementation, which informed the subdivision of the site into three garden

complexes. The chapter then discusses actors' properties and interactions across the neighbourhood and within a typical shared garden. This is followed by an analysis of how gardens have evolved from their original configuration, focusing on change motivations, affected compositional forms, and timeframes. Each garden's composition is discussed diachronically, highlighting key transformations. The chapter concludes with a synthesis of the findings from the investigation in Lanxmeer.

Chapter 4 presents an overview of the two additional research sites — Kersentuin and Vrijburcht — offering a comparative lens to understand landscape transformation in shared residential gardens. It begins by situating each site in its landscape and governance context, followed by an examination of how transformation unfolds in each garden. Particular attention is given to the specificities of change in these cases, reflecting on how they align with or diverge from the patterns observed in Lanxmeer. Through this comparison, the chapter deepens the understanding of how different configurations of design and governance shape the evolution of shared gardens over time.

Together, Chapters 2, 3 and 4 comprise *Part 1 — Investigating On-Site Transformation*.

Chapter 5 translates the empirical findings into a set of design principles for residential green commons. To this end, it revisits and synthesises the preceding analyses and addresses the research question: '*What compositional changes, along with their drivers, processes, and temporal-spatial characteristics, underpin the evolution of shared residential gardens over time?*' (RQ2). Through the identification of design and governance capacities in relation to the patterns of change identified across cases, the chapter supports the formulation of guidelines grounded in the empirical material and tested through a design workshop and validated in a focus group. These guidelines serve as the basis for deriving design principles. The chapter therefore concludes by addressing the question: '*What principles can be formulated to cultivate change through the design of residential green commons?*' (RQ3).

The final chapter reflects on the research findings as a whole, revisits the three research questions, and discusses broader implications, limitations, and recommendations for future work.

Together, Chapters 5 and 6 comprise *Part 2 — Cultivating Change*.

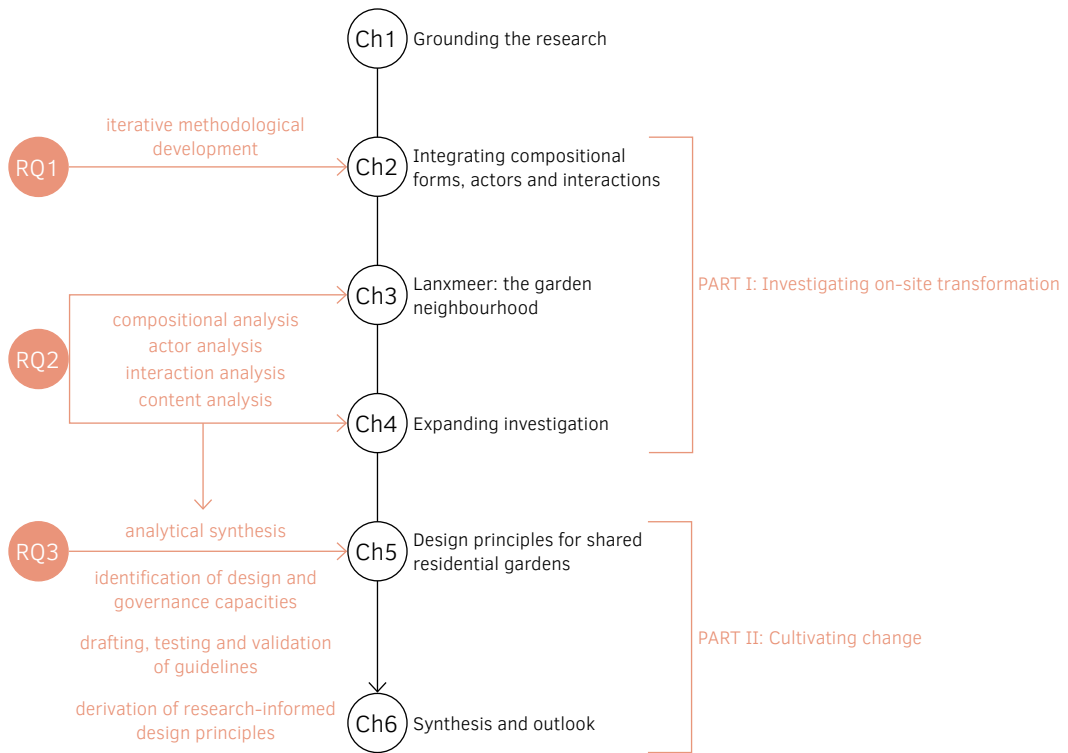


FIG. 1.11 Research questions, methods, and dissertation chapters.

PART I

Investigating on-site transformation

Part I develops an empirical and analytical understanding of how shared residential gardens change over time. Drawing on an ethnographic-based investigation, it examines observed practices, spatial transformations, governance arrangements, and the interactions between human and non-human actors across the cases. The chapters in this part analyse the reciprocal entanglement of design, management, and use as it unfolds in everyday situations and over time. The emphasis lies on tracing situated dynamics of change, paying attention to how transformation emerges through use, maintenance, negotiation, and ecological development. Together, these chapters establish the analytical ground on which the subsequent synthesis and development of design principles is based.

2 Integrating compositional forms, actors and interactions

This chapter introduces a series of analytical tools and strategies that together form an integrated approach combining methods from design and governance to investigate landscape transformation. Through a diachronic lens, the chapter outlines how spatial, social, and ecological dimensions were studied in parallel, analysing how gardens are designed and experienced (Section 2.1), how human and non-human actors participate and change over time (Section 2.2), how interactions unfold formally and informally (Section 2.3), and how change is captured, coded, and interpreted through content analysis (Section 2.4). The chapter concludes with a methodological overview (Section 2.5), summarising the key analytical steps and presenting a visual diagram of the integrated research process. Together, these elements form a coherent framework for analysing design composition, actors, and interactions to investigate change in shared residential gardens over time, while accounting for social and ecological interconnections.

2.1 Analysing garden design composition

This section introduces the analytical framework used to study the composition of shared residential gardens. Drawing on a tradition of formal analysis in landscape architecture, it approaches garden design as a layered construct shaped by spatial, functional, and symbolic elements. Rather than treating gardens as fixed artefacts, this research investigates their composition as evolving over time. By adopting and adapting the four-form method developed at TU Delft, the section outlines how gardens are interpreted through their basic, spatial, programme, and image forms — each contributing to how design is expressed, experienced, and transformed. This framework provides the foundation for the diachronic analysis carried out across multiple gardens in the following chapters.

2.1.1 The four forms

This dissertation builds upon the tradition of formal compositional analysis as developed in TU Delft's Landscape Architecture section, where design is understood as an expressive transformation of the underlying landscape. First developed by Clemens Steenbergen in the context of formal landscape typologies (Steenbergen & Reh, 2003) and later elaborated by Saskia de Wit in the context of metropolitan gardens as expressions of *genius loci* (De Wit, 2014), the method enables an interconnected reading of design composition.

It consists of a layered approach that distinguishes between four interrelated compositional forms: a) basic form, b) spatial form, c) programme form, and d) image form. Each form captures a different facet of design composition. These four forms are non-hierarchical and do not operate in isolation; they interact dynamically, offering a means to dissect complexity while maintaining a holistic understanding of the garden as a designed and lived space.

A basic form

The basic form refers to the geometry of the garden in response to the physical and contextual conditions upon which the composition is laid — such as geomorphology, topography, soil, the existing urban fabric, and historical land patterns. It includes the site's layout, orientation, level changes, edges, and the interface between the design and existing surfaces.

B spatial form

The spatial form refers to the three-dimensional reading of the composition. It is concerned with the articulation of space through visual and physical boundaries that define enclosures and connections. This includes walls, hedges, tree lines, built volumes, and open edges that structure how the garden is experienced. Spatial form captures sequences, rhythms, and vistas, revealing how users orient themselves and how spatiality is perceived through scale, enclosure, and openness.

C programme form

The programme form addresses the form generated from the allocation and configuration of uses and activities within the garden in response to the site's landscape qualities. These range from sitting areas and compost bins to children's play spaces and vegetable plots. This form makes visible how social and functional needs are accommodated within the designed space.

D image form

The image form concerns the symbolic, perceptual, and representational qualities of the garden composition. It includes the aesthetic language of materials and vegetation, as well as broader references to cultural narratives, atmosphere, and landscape imagination. The image form expresses the garden's evocative dimension and how it represents ideas of nature, place, and collective identity.

Compositional analysis is well-suited for capturing the qualities of shared residential gardens as expressed through form, revealing interrelated structures that become more legible through a layered approach. It also enables the identification of aspects specific to each layer of the garden's design composition. However, to effectively investigate landscape transformation, the method requires adaptation to incorporate the temporal dimension.

2.1.2 Reading forms over time

In the context of this research, compositional analysis is used to understand how garden's physical space undergoes transformation over time. While the four compositional forms can be analysed at a specific moment, this research adopts a diachronic perspective to trace how these forms evolve. By examining changes in each compositional form across multiple timeframes, the study reveals how different aspects within each layer of a garden's design composition have been maintained, adjusted, reinterpreted, or lost over time.

In adding the time dimension to the design composition, it is essential to define a baseline, with at least two reference stages within the timeline of the garden's design composition. The starting point, referred to as the original design (TO), represents the first iteration in which users begin to recognise and treat the shared space as a garden. Defining this starting point ensures a comprehensive understanding of the garden's evolution. Both formally designed and informally developed gardens are considered, allowing for the inclusion of early spatial configurations that may have significantly shaped subsequent design decisions. Acknowledging informal uses and experiences contributes to a more complete picture of how these spaces have developed over time. Following the establishment of the original design, the other critical reference point is the current situation (TC). This reflects the garden's composition as found, shaped by the accumulation of social learning and interactions between human and non-human actors and with the physical space. Together, TO and TC provide the minimum reference points for a diachronic compositional analysis, although intermediate and future timeframes may also be relevant.

Each compositional iteration is represented according to the four forms. To enable comparative analysis across multiple gardens and timeframes, the compositional forms are broken down into their fundamental aspects and represented schematically. The format used in this dissertation is the result of multiple rounds of testing and refinement. The diagrams were adapted to best capture each garden's particularities while maintaining consistency in how core features are represented across all studied gardens.

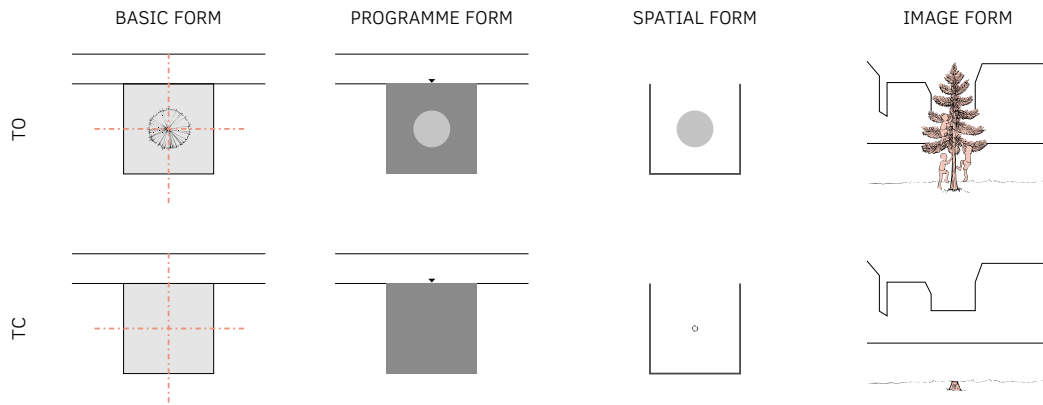


FIG. 2.1 Diagrammatic representation of the four forms over time, using a single chopped climbing pine as an example. Basic form: axes, derived/auxiliary lines, and arch centres. Programme form: zones for social interaction or sensory experience, gardening areas, garden entrances, and main paths. Spatial form: levels of enclosure, pathways, elements above and below eye level, boundaries (opaque vs see-through), and view lines. Image form: textures, accent colours, and symbolic elements.

In this dissertation, the **basic form** is represented through the garden's primary geometry, shaped in response to the landscape conditions. The **programme form** identifies three types of spatial areas commonly found across all gardens: 1) spaces for social interaction, such as playgrounds and collective seating; 2) spaces for sensory experience, understood as areas designed to engage bodily perception through planting, textures, smells, sounds, and seasonal change; and 3) gardening areas, including vegetable plots, herb beds, and flower gardens. Maintenance tasks such as mowing or pruning are not included, as gardening is here understood as active cultivation rather than maintenance practices. While spaces for social interaction and sensory experience are treated as analytically distinct, gardening areas often overlap with both. The **spatial form** is analysed through the experience of openness and enclosure, as well as through shelters and barriers — represented by isolating the shared gardens from private ones. Finally, the **image form** encompasses elements such as materiality, textures, colours, and special meanings. In the comparative diagrams, this layer is represented in a simplified manner, highlighting only its most prominent features. (Figure 2.1)

2.2 Analysing human and non-human actors

Understanding how shared residential gardens change over time requires close attention to the actors involved in shaping, maintaining, and transforming these spaces. In this research, actors are understood as both human and non-human entities whose actions, presence, or absence affect the garden's composition and governance. Analysing these actors and their relationships provides insight into how power, interests, and influence are distributed across time and scale. This section outlines how the research adjusts stakeholder analysis methods to identify and characterise both human and non-human actors, and to investigate how their properties and modes of participation evolve from the garden's original design (TO) to the current condition (TC).

2.2.1 Actors identification and characterisation

Analysing actors is pivotal to investigating transformation in shared residential gardens. In this research, actors are understood as both human and non-human entities that contribute to — or are affected by — changes in the garden's composition. Analysing actors helps uncover the range of agencies, intentions, resources, and constraints present in shared garden contexts, where spatial and organisational decisions are rarely the result of a single perspective. Identifying and characterising actors enables a better understanding of how design and governance intersect in the everyday life of shared residential gardens.

Among the various approaches for studying actors, stakeholder analysis remains the most established and widely used — particularly in governance and policy-related research (Bryson, 2004). It offers a structured way to map the individuals, groups, and institutions involved in a given process, and to assess their roles, interests, levels of influence, and relationships.

A wide range of techniques exists for identifying and analysing stakeholders, many of which have been developed specifically for public-sector contexts. Bryson (2004) outlines several that are particularly relevant, including the basic stakeholder analysis technique, power-interest grids, stakeholder influence diagrams, and participation planning matrices. The basic stakeholder analysis technique involves identifying stakeholders and mapping their interests, concerns, and potential impacts on the process. Power-interest grids categorise stakeholders based on

their level of authority or influence and the degree to which they are affected by — or concerned with — the issue at hand. Stakeholder influence diagrams help visualise the relationships between stakeholders, including flows of influence and interdependence. Participation planning matrices assist in determining how and when different stakeholders should be involved in decision-making processes.

While these techniques are not applied in their original format in this research, they provided a conceptual foundation for the development of the methods used. Elements of each are drawn upon to identify and characterise human and non-human actors across all gardens, examined at different timeframes — thus laying the groundwork for the methodological adaptations introduced in the following section.

2.2.2 Humans and non-humans properties over time

Stakeholder analysis forms the foundation of the actor analysis in this study, albeit with adaptations to include not only human entities but also non-human actors that emerge as significant within the context of shared residential gardens. In these environments, non-human actors — such as soil, vegetation, water, animals, and weather conditions — play active roles in shaping the garden's physical space and influencing stewardship. These entities are not merely part of the background; they are entangled in the negotiation processes, value systems, and daily routines that characterise shared management. Recognising their presence as actors enables a more complete understanding of how change unfolds, how agency is distributed, and how human and non-human systems co-construct the landscape over time.

Through several analytical iterations undertaken during the development of the methodological framework, the actor analysis in this research was structured into three sequential steps: a) identification of actors, levels, and resources; b) assessment through a power–interest–influence grid; c) analysis of participation in garden transformation.

A identification of actors, levels, and resources

Actors are identified and categorised according to their level of operation, understood here as the spatial scale at which they act and exert influence, ranging from the individual garden and household level to neighbourhood and provincial scales. This includes individual residents, shared garden collectives, neighbourhood organisations, and institutional actors.

For both human and non-human actors, key resources are first assessed in terms of their capacity to change the physical space or to influence the actions of other actors. In the case of human actors, this includes forms of knowledge, experience, technical and design skills, leadership capacity, and creative agency. For non-human actors, it refers to their material, ecological, or spatial properties through which they shape use, maintenance, or transformation processes.

In addition, for human actors, specific resources such as property ownership, regulatory authority, and financial means are recorded, as these directly affect decision-making power and access to formal negotiation arenas. Taken together, this information helps establish each actor's role, agency, and relative position within negotiation processes related to garden use, management, and transformation, which are further discussed in the following sections.

B power-interest-influence grid

Each actor is assessed in terms of their power, interest, and influence in the context of shared garden governance. To do so, a modified version of the power-interest grid developed by Ackermann and Eden (2011) is applied. The grid positions actors along two axes: their level of interest in the shared garden and its spatial outcomes, and their capacity to influence decisions and transformations related to the garden. In this research, interest refers to the degree to which an actor is directly concerned with the garden, its use, maintenance, and future development. This includes everyday involvement, attachment to the space, and stakes in the outcomes of spatial change. Power is understood as an actor's capacity to affect decisions or bring about change, particularly in relation to the physical transformation of the garden. This capacity derives from the resources identified in the previous step, including the ability to alter the physical space, influence the actions of others, and, for human actors, access to property rights, regulatory authority, financial means, or specialised knowledge and skills.

Following Ackermann and Eden (2011), actors are grouped into four categories based on their relative positions on the grid: **players** (high interest, high power), **subjects** (high interest, low power), **context setters** (low interest, high power), and the **crowd** (low interest, low power). These categories are used as analytical descriptors rather than fixed classifications, allowing actors to shift position over time as their interests, resources, or capacities change.

The positioning of actors on the grid is based on a qualitative and interpretative assessment informed by interviews, document analysis, and on-site observations. As such, the grid does not claim objectivity, but reflects the researcher’s interpretation of relative power and interest at specific moments in time.

To further capture relationships between actors, the grid is enhanced with directional arrows indicating **influence** between actors rather than direct impact on the garden itself. These arrows make visible how agency may be exercised directly or indirectly across categories. Influence relationships are represented as unidirectional: where mutual influence exists, the arrow indicates the actor assessed as exerting the stronger influence. For example, non-human context setters such as sunlight exposure or soil conditions influence players by shaping design decisions, including spatial layout and species selection, thereby affecting subsequent practices and interactions.

The analysis is applied to at least two timeframes: **TO**, corresponding to the period of the original garden design, and **TC**, representing the situation encountered during fieldwork. Comparing these two moments allows the research to identify shifts in actor configurations, resources, and forms of agency over time. The power–interest–influence grid thus serves as a heuristic device to visualise who effectively shapes garden transformation processes, through which means, and with what degree of involvement, providing a basis for the subsequent analysis of interactions and outcomes. (Figure 2.2)

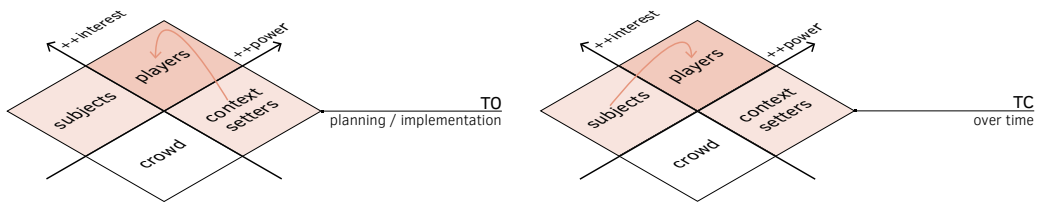


FIG. 2.2 Power–interest–influence grid adapted from Ackermann and Eden (2011), showing actor categories and influence relationships, expressed by arrows, at two timeframes (TO: original design; TC: over time).

C participation in garden transformation

Finally, participation in garden transformation focuses on how different actors contribute to the physical transformation of the shared garden, either directly or indirectly. Participation is understood broadly, encompassing both garden use and garden management insofar as these activities shape, maintain, or alter the spatial configuration of the garden over time. Garden management refers to involvement in routine maintenance and decision-making related to the physical space, while garden use refers to patterns of occupation, wear, growth, and withering resulting from everyday practices.

Actor participation is mapped in relation to their position within the power-interest-influence grid and translated into the spatial domain of the garden. For each actor, modes of involvement are specified using directional arrows that distinguish between direct participation, such as hands-on interventions in the garden, and indirect participation, such as acting in advisory, consultative, or influential roles that shape decisions made by others. These relationships are visualised in relation to selected sections or parts of the garden, allowing the grid-based analysis of power and interest to be situated spatially.

This step focuses on the current timeframe (TC), while explicitly referring to the transformations identified between TO and TC. Rather than attempting to document all changes, the analysis concentrates on selected and significant transformations in each garden in order to examine the power-interest-influence relations involved in the processes that led to the situation observed at TC, or that continue to operate within it. (Figure 2.3)

These analytical tools are applied sequentially, with each step building on the previous one, and are interpreted in relation to the temporal trajectories revealed through compositional analysis, as well as the insights gained from the analysis of actors and interactions.

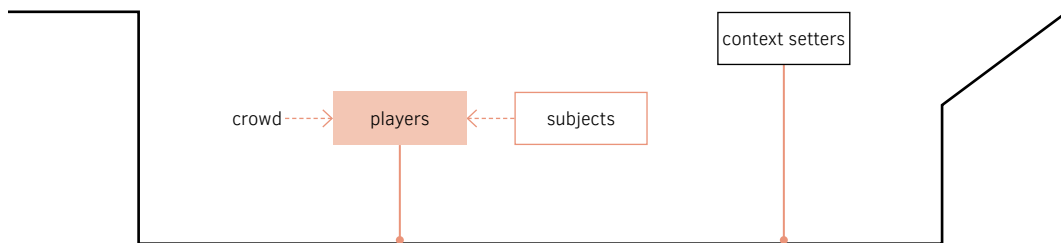


FIG. 2.3 Actors' participation in garden transformation. Diagrammatic representation of types of involvement, based on the classification in the power-interest-influence grid.

2.3 Analysing formal and informal interactions

This section focuses on the interactions which unfold in shared residential gardens. Rather than limiting the analysis to formal decision-making processes, it expands the scope to include a wider range of interactions — planned or reactive, formal or informal — that influence how gardens are managed and transformed over time. Drawing on insights from governance literature, the section outlines how interactions were identified, characterised, and interpreted, acknowledging the role of both human and non-human actors. The aim is to understand how collective decisions are shaped not only through official procedures, but also through everyday exchanges, embodied practices, and material responses.

2.3.1 Interaction as analytical focus

Understanding how change unfolds in shared residential gardens calls for an analysis of the interactions between humans, non-humans, and the physical space. These interactions represent the continuous process of negotiation that reshapes the garden's spatiality. In these settings, change does not occur through isolated actions but through processes of alignment, contestation, experimentation, and adjustment. These interactions structure how agency is exercised and distributed across the environment, and they offer insight into how design and governance are entangled in everyday life.

In a multilevel setting, interactions occur both within the same level (horizontally) and across different levels (vertically). These interactions may take place through both formal and informal means. Formal interactions are guided by established procedures — such as voting mechanisms, scheduled meetings, or delegated tasks — and are typically traceable through institutional routines. Informal interactions, by contrast, encompass undocumented and non-procedural exchanges such as spontaneous conversations, silent agreements, gestures of care, or unspoken understandings between humans and non-humans. In governance contexts with distributed authority, informal practices often play an equally vital role in shaping outcomes (Van Popering-Verkerk & Van Buuren, 2016).

Some interactions aim to achieve specific outcomes and can be traced through the corresponding decision-making process. However, the governance literature recognises that the output (actions taken) and the outcome (actual results) do not always align (de Bruijn et al., 2010). Moreover, actors frequently engage with one another and the physical space without an intended outcome, yet their actions still provoke change. These diffuse and often unstructured forms of interaction challenge the applicability of traditional decision-making analytical tools.

To address this complexity, the research broadens its analytical scope from formal decision-making to the wider processes of interaction — understood here as the ways in which humans and non-humans negotiate within the garden setting. In governance literature, negotiation is typically defined as an intentional process through which human actors align perspectives, manage interdependencies, and reach collective decisions (de Bruijn et al., 2010; Sørensen & Torfing, 2007). However, not all change in shared gardens arises from deliberate negotiation. Some changes occur without explicit interaction between actors, and many involve non-human actors. This study adopts a more flexible and inclusive understanding of negotiation — one that encompasses subtle, often informal, and sometimes unspoken processes through which humans, non-humans, and the physical environment respond to and influence one another. A hedge planted without previous deliberation, a path slowly overtaken by vegetation, or an improvised seating area that redirects circulation all illustrate negotiation processes that fall outside conventional definitions but still shape spatial outcomes. This broader interpretation enables the analysis of situated, embodied, and materially mediated forms of governance.

To support this approach, the analysis draws on insights from process management (de Bruijn et al., 2010) and network governance (Sørensen & Torfing, 2007), which understand negotiation as a distributed and iterative process. These perspectives reject linear models and instead frame change as emerging through rounds of interaction, shaped by shifting actor configurations, evolving contexts, and reframing of issues. The analytical framework developed in this dissertation builds on these foundations and is introduced in the following section.

2.3.2 **Analysing interaction in shared residential gardens**

This research embraces an expanded concept of negotiation as analytical lens for understanding interactions among human and non-human actors and with the physical space in shared residential gardens.

Analysing these interactions reveals several challenges. First, procedures and structures often evolve or gradually weaken over time. Similarly, interactions may shift from formal to informal, reflecting the lived complexity of shared governance. These shifts are not always explicitly communicated and often become apparent only through detailed fieldwork.

Second, negotiations take place through both verbal and non-verbal means. Verbal negotiations may range from documented meetings to casual conversations among neighbours. Non-verbal negotiations, on the other hand, include actions carried out by individuals on their own initiative or changes that result from biophysical processes.

Given these dynamics, this study adopts a flexible analytical approach that treats interactions as potential sites of negotiation, regardless of deliberate outcomes. This enables a more accurate representation of how change occurs in the studied lived environments.

Based on the empirical findings, four types of negotiation settings were identified across the gardens:

- **Procedural planning:** planned interactions conducted through formal procedures;
- **Procedural response:** reactive interactions that follow formal procedures;
- **Informal planning:** planned interactions carried out through informal means; and
- **Informal response:** reactive interactions occurring informally and spontaneously.

These types are derived from two key dimensions: whether the interaction is planned or reactive, and whether it takes place through formal (procedural) or informal means.

Guided by these categories, the analysis of interaction processes was organised into two complementary strands:

- A **Tracing formal interactions:** this includes mapping actors and their interactions within formal structures, whether planned or reactive, and identifying their horizontal or vertical orientation. These interactions occur in procedural planning and procedural response settings and include only verbal communication.

- B Tracing informal interactions:** this strand focuses on non-procedural exchanges, whether structured or unstructured, encompassing both planned patterns (such as seasonal gardening) and spontaneous reactions. These correspond to the informal planning and informal response settings and include both verbal and non-verbal interactions involving human and non-human actors.

Together, these analytical steps enable a nuanced understanding of how change unfolds through both explicit and less explicit forms of negotiation. They also create a foundation for coding the observed interactions and relating them to the compositional analysis and actor analysis.

2.4 Analysing content

This section presents the analytical approach developed to investigate change in shared residential gardens, building on the content analysis introduced earlier in Chapter 1 (Section 1.6.3). The approach focuses on deriving insights and identifying patterns from the changes observed in the studied gardens (where), by examining the actors involved (who) and their negotiation settings (how), alongside the motivation for change (why), the timeframe in which it occurred (when), and the altered compositional form (what). The analysis integrates spatial and governance perspectives to trace transformations across both garden composition and social-ecological relations. Two complementary strands are outlined: one dedicated to coding actors and interactions (who and how), and the other aimed at deepening the understanding of each change (where, why, what, and when). Together, these dimensions offer a layered understanding of change as a situated and relational process.

The documents analysed through coding, including interview transcripts, fieldwork reports, and supporting materials, are available as an open dataset (Veras Morais, 2025). The final codebook used in the analysis is provided in **Appendix C**.

2.4.1 Coding actors (who) and interactions (how)

Content analysis was conducted to identify the actors (who) involved in each change and to understand its negotiation setting (how). This approach contributed directly to the actor and interaction analyses by providing insights into actors' interests and power, their modes of interaction, and the relationships between them — all of which contribute to shaping compositional change.

To support the actor analysis, labels were assigned to all identified human and non-human actors, with attention to their characterisation and level of operation.

Human actors were distributed across four levels: the housing project, the neighbourhood, the municipality, and the province. They were further characterised based on their personal and collective attributes. Residents were coded according to their personal motivations for living in the neighbourhood and their roles within the community. Communities were characterised through their socio-cultural profile (including demographic features and the proportion of owner-occupied homes) and the quality of internal relationships. These ranged from closely bonded groups to collaborative or contentious ones. Alongside this characterisation, actor resources were coded, including financial means, legal authority, ownership status, and regulatory influence. Together, these properties provided the basis for distributing actors within a power-interest-influence grid and for interpreting the motivations underpinning specific interactions.

Non-humans were grouped into abiotic and biotic actors. Abiotic actors included rainwater, soil, and sunlight, while biotic actors encompassed both flora and fauna. Among the flora were trees, hedges, shrubs, ornamental plants, groundcovers, flowers, and edibles. The fauna comprised small birds, storks, frogs, moles, other forms of urban wildlife (e.g., insects, arachnids), and domestic animals — most commonly dogs, cats, chickens, and rabbits. Non-human actors were further distributed across three levels of operation: the housing project, the neighbourhood, and ubiquitous presence.

To support the interaction analysis, codes were assigned to the four types of negotiation settings: procedural planning, procedural response, informal planning and informal response. Procedural planning includes committee meetings, courtyard meetings, and neighbourhood assemblies, where decisions affecting the garden were made. Procedural response encompasses formal mechanisms triggered by emergent issues, such as votes (by simple or supermajority), full consent agreements, vertical or horizontal consultations, and top-down decisions. Informal interactions were captured under informal planning and informal response. The former includes loosely planned activities and informal agreements, such as seasonal gardening or social gatherings. The latter encompasses spontaneous, everyday forms of interactions, including casual conversations, individual judgements, and non-verbal actions. This typology enables a nuanced understanding of how both formal and informal interactions contribute to change.

The coding process also accommodated emergent categories — codes that arose inductively from the data and offered deeper insights into the dynamics of change. One such category is ‘garden engagement’, which captures the community’s degree of involvement over time. ‘Garden perspectives’ describe how the garden was perceived or treated. Additional codes emerged around ‘garden toponymy’ and ‘systemic relationships’, which highlight interconnections among gardens within the same neighbourhood. Further influences were captured under ‘community totems’ — symbols, shapes, or elements perceived as emblematic of a shared identity — and ‘pressing issues’ that remained unaddressed despite their significance.

Together, these codes and categories provided a layered account of the actors and their interactions in the garden setting, supporting a grounded, relational understanding of transformation over time.

2.4.2 **Coding compositional change (where, why, what, and when)**

Changes were examined in detail and coded according to four key dimensions: where the change occurred, why it happened, which compositional form was altered, and when the change took place. This structure enabled links between alterations and broader spatial, temporal, and social dynamics.

The ‘where’ dimension captured the location of change — where something was added, removed, reshaped, or otherwise modified. This included elements such as vegetation, surfaces, objects, structures, and spatial configurations. The ‘why’ dimension addressed the motivation behind change, encompassing a wide range of drivers: material or ecological life cycles, biophysical processes, unforeseen challenges, or personal preferences. These motivations were derived directly from transcripts and reports. The ‘what’ dimension located each change within at least one of the four compositional forms: basic form, spatial form, programme form, or image form. A separate code was created for each form within each garden, as well as for outdoor areas across the neighbourhood. The ‘when’ dimension categorised change according to its timeframe: during implementation; within the first five years; between 5-10 years; between 10-15 years; after 15 years; in the future (not yet realised); and sporadically (e.g. seasonal or yearly) or unspecified (when the timing could not be determined).

Coding began by assigning descriptive labels to each identified change (where) and its associated motivation (why). However, the corresponding 'what' and 'when' were not always clearly stated in the original documents. To address this, additional data sources were consulted to fill the gaps. The altered compositional form (what) was identified during the sketching of the four forms, while the timeframe (when) was established by comparing satellite imagery from different years with older and recent photographs. This workaround, though necessary, limited the use of certain Atlas.ti features, such as co-occurrence and network analyses, reducing their reliability.

To ensure consistency, every identified change was ultimately labelled with its corresponding 'where', 'why', 'what', and 'when'. Where needed, the source documents — booklets, reports, and transcripts — were annotated ad hoc to clarify the basis for coding.

Code-code links were also established to connect changes (where) to the associated actors (who) and interactions (how). These links were particularly useful for identifying patterns through network analysis, although the actor and interaction analyses were conducted in parallel, rather than via co-occurrence or code-document methods. To ensure clarity, specific notes were added to each code-code link, indicating the particular change to which the relationship referred.

All codes were structured into categories using Atlas.ti's folders, parent codes, and child codes, followed by thematic grouping. The coding process was documented in a dedicated memo, which included the step-by-step workflow, groundedness (i.e. number of occurrences), and key insights derived from network visualisations, co-occurrence patterns, and code-document relations. Thematic groupings and emergent patterns were recorded in parallel with the analysis and served as the foundation for subsequent interpretation.

Together, the coding of compositional change and the analysis of actors and interactions provide a multilayered understanding of how shared residential gardens evolve over time. This integrated approach makes it possible to connect compositional alterations with social-ecological pressures and negotiation processes, offering a grounded view of transformation as both a material and relational phenomenon.

2.5 Overview of the methodology

The methodological approach combines design and governance methods into an integrated framework for investigating landscape transformation in shared residential gardens. Compositional analysis (Section 2.1) provides the basis for examining the layered structure of garden design, while actor analysis (Section 2.2) introduces a relational understanding of human and non-human involvement over time. The interaction analysis (Section 2.3) broadens the focus from formal decision-making to a wider reading of negotiation, including informal and non-verbal modes. Finally, content analysis (Section 2.4) serves as a cross-cutting method for coding and interpreting compositional change, actor properties, and interaction types across multiple timeframes.

The methodology unfolded through the following main steps:

- Fieldwork and data collection, combining interviews, on-site observations, document review, and photographic analysis across the shared gardens.
- Mapping and reconstructing garden composition through four layers (basic, spatial, programme, and image forms), analysed across different timeframes.
- Identifying and characterising human and non-human actors, including their properties and levels of influence.
- Coding interactions by classifying negotiation settings and linking them to specific actors and changes in the gardens.
- Coding compositional change in terms of where, why, what, and when, using Atlas.ti to structure categories and interpret patterns.
- Linking codes across spatial, social, and temporal layers to reveal an in-depth understanding of each change.
- Synthesising patterns and insights through network analysis, memos, diagrams, and the interpretation of visual outputs.

These steps are visually represented in the methodology diagram, which outlines the key analytical layers, their interconnections, and the iterative process of interpretation.

This integrated methodology provides a structured yet flexible way of investigating transformation in shared residential gardens. By combining design-based, actor-oriented, and process-focused analyses, it allows for a nuanced understanding of transformation through everyday interactions between humans, non-humans, and the environment, linking shifts in physical composition to social-ecological dynamics.

In doing so, the methodology responds to research sub-question 1, which asked: ‘how can methods for analysing design composition, actors, and interactions be integrated to investigate change in shared residential gardens over time, while accounting for social and ecological interconnections?’. The approach developed in this research integrates these dimensions and enables their interpretation through a diachronic lens, revealing how small-scale events accumulate and interact to shape long-term transformation. (Figure 2.4)

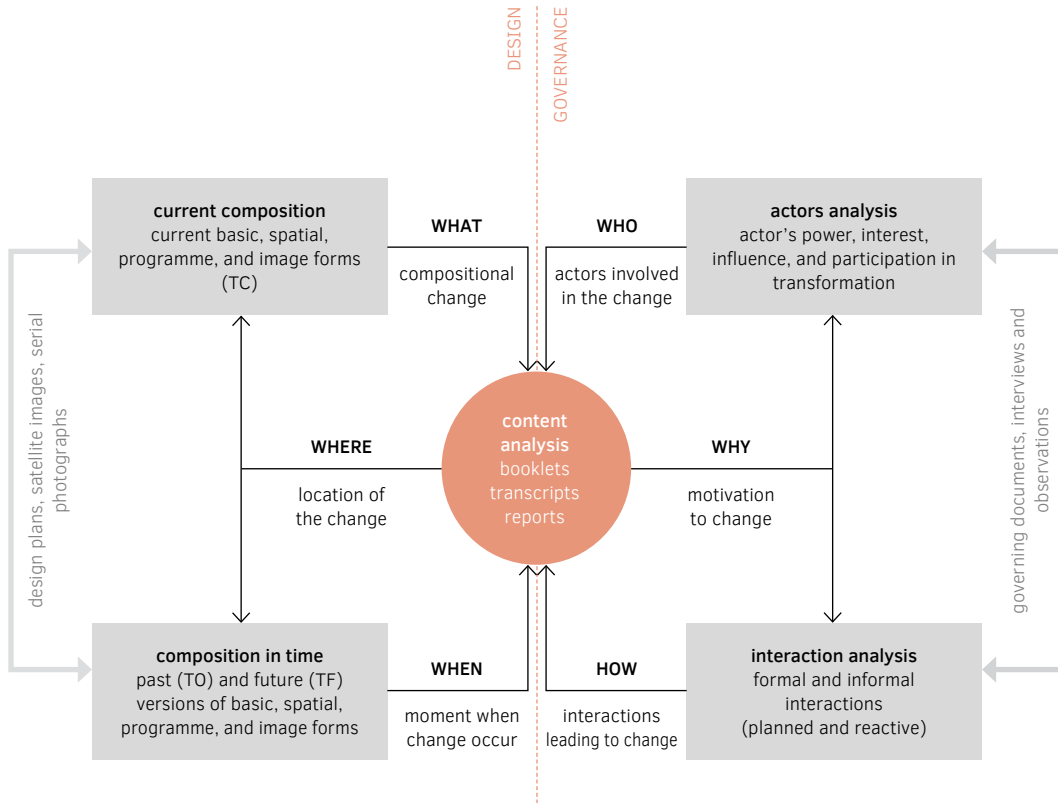


FIG. 2.4 Methodology diagram showing integration of design and governance methods to investigate change.

3 Lanxmeer: the garden neighbourhood

Lanxmeer's shared gardens are the result of intertwined design intentions, as well as social and ecological dynamics. This chapter examines how the shared gardens of Lanxmeer have evolved from their original configurations to their present condition, uncovering the social, ecological, and spatial processes that have shaped them over time. It analyses the neighbourhood's structure and governance, the properties and interactions of human and non-human actors, and the compositional changes observed across the gardens. Drawing on content analysis, the chapter identifies where, why, when, and how change has occurred, relating these shifts to residents' motivations, garden composition, and actors involved. By comparing three garden complexes, the analysis reveals how design, governance, and everyday practices intertwine to sustain or transform these shared environments.

3.1 Project overview

This section provides an overview of the Lanxmeer neighbourhood. It begins with the urban development process and landscape conditions that informed the neighbourhood's layout, then examines its governance and spatial characteristics, introducing the concept of garden complexes as a framework for grouping and analysing the shared residential gardens. The section concludes by outlining features commonly observed in a typical courtyard. Together, these elements establish the compositional and organisational foundation for the analytical sections that follow.

3.1.1 Conception and realization

Lanxmeer is an ecological, community-driven neighbourhood in Culemborg, Province of Gelderland, the Netherlands, covering 24 hectares. It is located along the Meer River, from which it takes its name, 'Langs de Meer', and is home to a protected drinking water extraction area. The project was initiated by the EVA Foundation (Stichting Ecologisch Centrum voor Educatie, Voorlichting en Advies), founded in the early 1990s by Marleen Kaptein. Supported by a multidisciplinary team, the foundation developed a conceptual document outlining objectives and principles based on sustainability and permaculture ideals, which guided the planning and design process. The foundation received support from Ir. Jan Goed (director of Ruimte, Municipality of Culemborg), alderman Jean Eigeman, and later from Province Gelderland, which led to a collaboration for the development of the neighbourhood in the location. (Pötz & Kaptein, 1995) (Figure 3.1)



FIG. 3.1 Lanxmeer: neighbourhood location. (Adapted from Google, 2025a)

Architects, urban designers, landscape architects, and prospective residents all collaborated on the project. Following three workshops with potential residents, the preliminary design for the urban development was presented at a public master class. The event was attended by planning and design professionals, as well as residents from Culemborg and beyond. The proposal incorporated many of the desires of potential residents, including a strong emphasis on green, blue, and communal spaces. However, the proposal faced significant criticism for its weak

connection to the existing landscape, superficial consideration of water extraction as a *genius loci*, disregard for permaculture principles, lack of an integrated water management plan, limited integration with the city and urban fabric, poor quality of open spaces, and the overwhelmingly open space resulting from the choice of long apartment blocks, without these forming smaller spaces.

The program of requirements was revised by Martin Dubbeling (BügelHajema Adviseurs), who developed a new ecological framework for the neighbourhood's design. The project team — including landscape architect Hyco Verhaagen (Copijn Utrecht) and architect Joachim Eble (Eble Messerschmidt Partner - Architekten und Stadtplaner PartGmbB) — then designed a new urban development plan, incorporating the cultural-historical values map of the municipality of Culemborg, prepared by RAAP Archeologisch Adviesbureau. This map indicated the presence of cultural and architectural heritage, including a water tower, as well as archaeological sites.

The urban development plan, while giving special treatment to these archaeological sites, emphasised the central role of water extraction as an ecological core, linking the river Meer and the railway embankment while integrating the northern and southern sectors. The homes are distributed across smaller housing projects, with buildings arranged to create enclosed spaces. The neighbourhood features a strong residential character, integrating spaces for work, study, recreation, local food production, and drinking water extraction. Other key features of the final urban development plan include: 1) the establishment of education and communication centres, 2) low energy consumption, 3) a closed water cycle, 4) a focus on biodiversity and cultural-historical values, 5) a mobility plan centred on low-traffic routes with bicycle and pedestrian connections running in north-west to south-east and west-east directions, and peripheral parking areas, and 6) building materials chain management. (EVA, 2003)

In the final proposal, the housing settlements feature a variety of building types, integrating different forms of living and income levels. This distribution follows the directives of the municipality of Culemborg, which stipulate that expansion plans should include 30 per cent social housing, 20 per cent housing for the middle-class private sector, and 50 per cent for the higher-end private sector. The first housing projects were completed by the year 2000, and the neighbourhood has continued to grow steadily since. Today, Lanxmeer is home to more than 400 households and features numerous housing developments with collective courtyards — or *hoven*, in Dutch. (Lanxmeer, n.d.)

In addition to the housing projects, the proposal also included schools, commercial buildings, and an urban farm, along with a community centre for education and communication — though the latter was never realised. Although the urban development plan was not strictly adhered to, it remains strongly evident in the current layout of the neighbourhood and has played a key role in preserving the ideals of the EVA Foundation.

3.1.2 **Landscape context and implantation**

Lanxmeer is bordered to the east by the river Meer, to the west by the state railway line — built in the 1870s — and to the south by the provincial road N320, constructed in the 1980s. In addition to the centrally located water extraction area — which divides the neighbourhood into northern and southern sections, as well as western and eastern portions — the geometry of the urban development plan was shaped by three main factors: historical lines, archaeological findings, and soil conditions. (Figure 3.2)

The historical layout of the area played a central role in shaping the urban plan. Polder lines originating in the Middle Ages, and further developed in the 19th and 20th centuries, established a distinct north-east to south-west pattern between the river Meer and the railway, guiding the location and orientation of the main local streets. Complementing this, two older pathways dating back to the 1800s ran almost perpendicular to the polder pattern, further influencing the urban layout by informing the alignment of cross-streets and the positioning of housing blocks.

Soil conditions played a fundamental role in shaping the development strategy. The sandy subsoil determined where settlements could be located, guiding the placement and distribution of housing clusters. Additionally, a former river arm running through the centre of the site informed the positioning of a large water body adjacent to the water extraction area. Its permeable gravel subsoil allows for water infiltration, as opposed to the several smaller ponds that hold surface water. This feature became central to Lanxmeer's integrated water system, which manages rainwater and wastewater through landscape-based strategies.

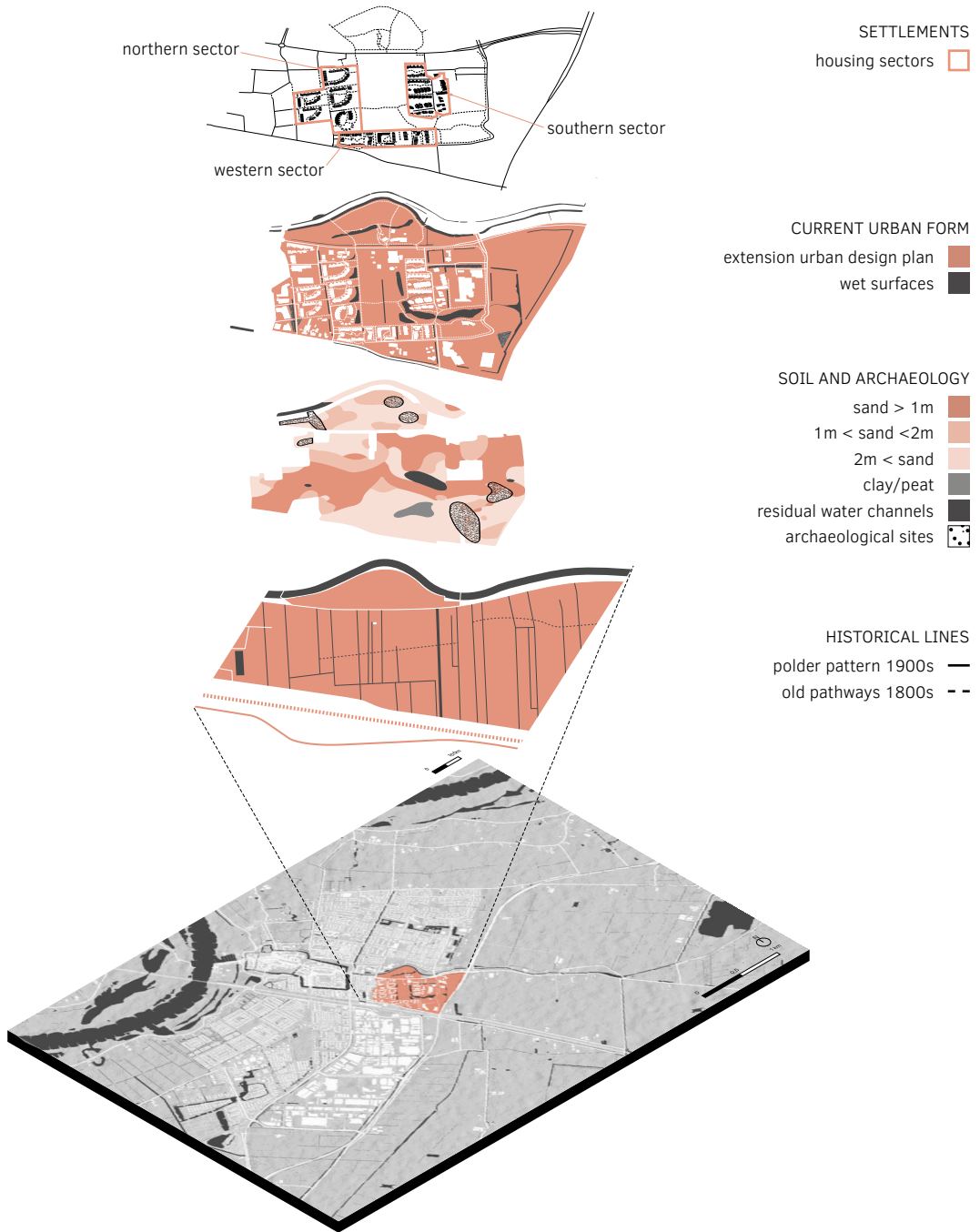


FIG. 3.2 Lanxmeer: housing sectors in relation to landscape context (historical lines, soil and archaeology), and the current urban form.

Archaeological discoveries further influenced the site's physical layout. Several zones containing archaeological remains were identified across the neighbourhood, where construction was prohibited. These areas were preserved through the creation of artificial hills, introducing a more dynamic topography into the otherwise flat terrain. The hills were formed using soil excavated during the construction of the central water body and ponds, ensuring a neutral ground balance.

Based on these landscape and historical factors, the settlements were distributed into northern, southern, and western sections, each responding to the physical and cultural specificities of the site.

Northern sector (2000-2003, 2021)

Among the first housing projects in Lanxmeer were those realised in the northern sector, which attracted strong interest from prospective residents involved in the design process. These initial projects closely reflected prospective residents' preferences concerning the form and placement of enclosed courtyards. Participants believed that collective courtyards with sides of roughly proportional lengths would foster non-hierarchical social interactions and strengthen community bonds.

The first four housing projects were built in accordance with the urban development plan, while a fifth, although located within the same designated area, was designed differently to reflect residents' preferences. Much later, in 2021, an additional development of five tiny houses was realised. In addition to housing, the northern sector includes a primary school and several commercial buildings. One of these buildings is currently being converted into residential units, providing 55 two- and three-bedroom rental apartments to meet the growing demand for housing.

Southern sector (2002-2012, 202X)

To promote diversity in urban form, the project team deliberately avoided repeating the same building typologies across sectors. In the southern sector, buildings were primarily arranged in a 'V' configuration, with collective courtyards situated between the housing rows. This layout remains recognisable in the current urban form, although the realised projects display slight variations in their actual footprints.

The urban plan also envisioned several free-standing work-and-living buildings, some of which included in the housing projects ensembles. However, some of them were not realised, allowing space for two additional housing projects in 'L'-shaped

arrangements: one consisting of an apartment building, and the other an ensemble of four houses grouped in two pairs. One further housing project in this sector is currently in a preliminary design phase.

The southern sector also accommodates a secondary school and sports facilities, distributed across multiple buildings.

Western sector (2006-2008, 2016-2021, 202X)

In the western sector, the project team planned a larger housing development with dwellings arranged in parallel rows. Most of the project was realised in accordance with the urban development plan, with a notable adaptation in the northwestern part, where buildings for social housing, assisted living, and care units were grouped around a central courtyard.

On the site originally designated for a community centre — which was never built due to budget constraints and uncertainty about future needs — a new housing project was developed in two phases, between 2016 and 2021. Additionally, a separate cluster of eight tiny houses was completed in 2021. Further south, a complex of commercial and educational buildings was planned around existing archaeological sites, protected by newly created mounds designed as a neighbourhood park; however, the complex was only partially realised. Today, this area includes a vocational secondary school, an office and conference building, and three houses, known as *onderlandwoningen*, that are integrated into and partially concealed by a four-metre-high mound.

The area is currently undergoing further development, with additional housing nearing completion.

Lanxmeer then, now and beyond

More than 25 years after the construction of the first houses, residential pressure in the area remains high. New housing developments are planned both within the neighbourhood — including the site of the former water tower — and just beyond its boundaries. However, these newer projects tend not to adhere to the original ideals of the EVA-Lanxmeer Foundation. (Figure 3.3)



FIG. 3.3 Lanxmeer: urban plan, realisation, and future developments. Comparison between the original urban development plan (1997) and the current configuration (2025), highlighting the spatial evolution of the neighbourhood. The diagram distinguishes housing projects as initially planned, those realised to date, and proposed or recently initiated developments.

Garden complexes

With few exceptions, housing projects in Lanxmeer are oriented around inner courtyards that function as shared gardens. The division of the neighbourhood into northern, southern, and western sectors also provides a useful framework for understanding the organisation of these shared gardens, as those within each sector — hereafter referred to as garden complexes — often display similar characteristics.

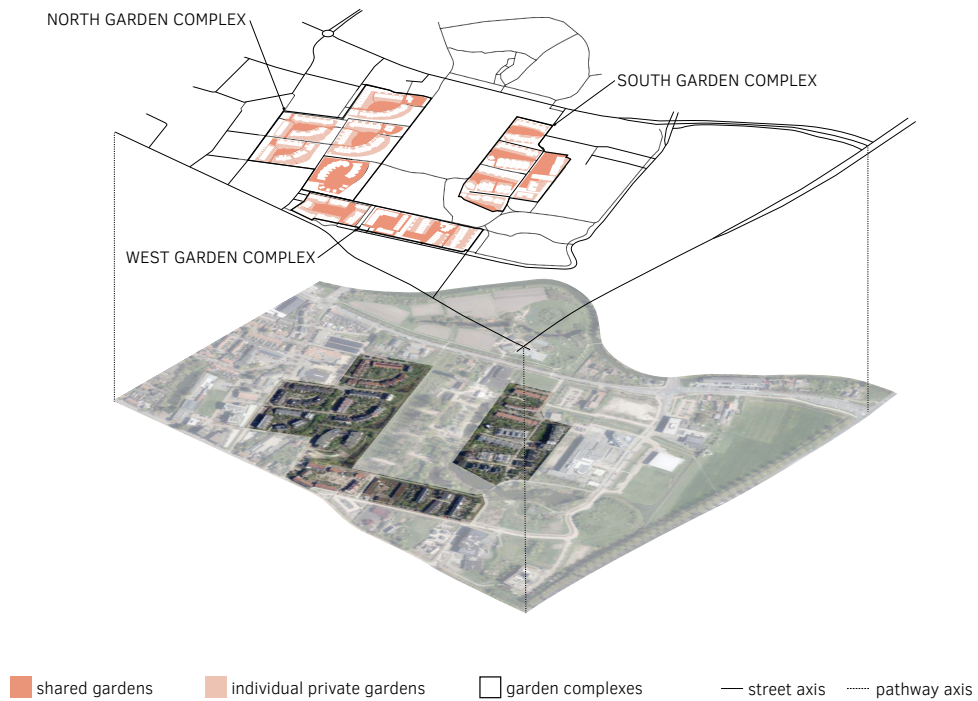


FIG. 3.4 Lanxmeer: garden complexes and the location of the shared residential gardens included in this research.

Of the 16 courtyards with gardens built to date in Lanxmeer, 14 were included in this research: five in the northern complex, six in the southern complex, and three in the western complex. The two clusters of tiny houses — Kwintet in the north and Hella Haassehof in the west — were excluded, as they exhibit highly specific spatial and organisational characteristics that differ significantly from the other courtyards. The remaining courtyards do not feature a shared garden within the scope of this study. (Figure 3.4)

3.1.3 Neighbourhood governance

Lanxmeer's governance model is of a bottom-up character and operates through a collaborative agreement with the municipality. The residents' association — BEL (short for Bewonersvereniging EVA-Lanxmeer) — functions as the central body in neighbourhood governance. Established in 1997 by a group of prospective residents, the association formally adopted its statutes in 1998, outlining membership conditions, governance principles, rights, obligations, and decision-making procedures. In 2005, after the first wave of residents had moved in, these statutes were supplemented by internal regulations that specified operational procedures, financial guidelines, and organisational structures. These include membership rules, governance frameworks, financial management protocols, and definitions of roles and responsibilities for the board and working groups, as well as contribution systems, reimbursements, and budget allocations. Membership is open to both residents and non-residents. (Figure 3.5)

A core component of BEL membership is the residents' agreement (bewonersovereenkomst), a formal internal agreement that outlines shared expectations regarding sustainability, management of collective spaces, and financial contributions. By signing it, residents explicitly commit to the project's principles, including participation in courtyard collectives, refraining from fencing off private plots, and parking only in designated areas. For homeowners, signing the residents' agreement and joining BEL is a condition attached to the property purchase at the time of entry into the neighbourhood. Continued membership of the association, however, is voluntary and can be discontinued after purchase. Tenants cannot be formally required to join BEL, although some choose to do so. While the agreement does not function as a public-law instrument, it formalises shared responsibilities within the neighbourhood and provides a recognised basis for coordination among residents and between BEL and external actors, including the municipality.

BEL is highly active, consisting of various entities, mostly run by volunteer residents. These include the board, working groups, an independent not-for-profit foundation (Terra Bella) and a resident-owned cooperative (Thermo Bello). While Terra Bella and Thermo Bello are legally autonomous, they maintain close ties to BEL through overlapping membership and regular reporting. These entities engage in ongoing dialogue with residents, governmental bodies, and each other, and consult with the municipality independently. They also work closely with Vitens, the semi-public drinking water company that owns the centrally located site within the neighbourhood, where groundwater is extracted to supply Culemborg. This collaboration concerns both the management of green spaces on Vitens-owned land and a commercial arrangement for the heating of residential buildings in the

neighbourhood. While the activities of the BEL board, Terra Bella, and some working groups may occasionally have consequences for the shared gardens, Thermo Bello and Vitens add to the broader spatial and ecological context within which the gardens exist.

The BEL board comprises at least three members — a chairperson, a treasurer, and a secretary — and operates in close consultation with residents. The board organises two general meetings each year, as well as additional meetings with the neighbourhood council, which typically consists of representatives from each courtyard.

In 2006, residents established the working group TOPLA (Toetsing Planontwikkeling) to oversee urban development within the neighbourhood. Comprising four to six BEL members, TOPLA ensures that new construction aligns with the EVA Foundation's principles and advises the municipality accordingly. Additional working groups address a range of goals, such as communication, welcoming new residents, resuscitation and AED provision (automated external defibrillators), electric car sharing, and amphibian protection.

Terra Bella, a resident-based not-for-profit foundation, coordinates the management of public green spaces in Lanxmeer in collaboration with the Municipality of Culemborg, which provides annual funding and advice during biannual inspection visits. While the municipality is responsible for infrastructure, safety, and major works, residents maintain the neighbourhood's plants, with support from Terra Bella's professionally trained ecological gardeners. Gardening activities are carried out autonomously, including four major collective gardening events organised annually by Terra Bella. They avoid large machinery, in line with permaculture principles that favour low-impact practices and minimise disturbance to the local ecosystem. In partnership with Vitens, Terra Bella also maintains the orchard and assists with other private areas, such as grasslands with bushes and branch ridges. In return, residents have the right to harvest and use the orchard's produce — apples and pears — for non-commercial purposes, which is shared collectively during annual harvesting activities.

The local energy cooperative Thermo Bello produces and distributes low-temperature hot water for heating residential and commercial buildings in the neighbourhood. The system makes use of thermal energy extracted from drinking water within Vitens' supply system. When Vitens decided to focus solely on drinking water provision in 2008, BEL was invited to take over the heating network, leading to the establishment of Thermo Bello. The cooperative is owned by its resident members and does not operate on a profit-driven basis; any financial surplus is collectively managed. Thermo Bello is run by a general and a technical manager and overseen by a board comprising a chair, a secretary, and a representative of the cooperative members.

In addition to Vitens, water governance in Lanxmeer involves the regional water authority, Waterschap Rivierenland. As the competent water board, it is responsible for regulating water levels and water quality at the regional scale, particularly where surplus water leaves the neighbourhood and connects to the wider system. Within the residential area, including ponds, wadis, and other surface water systems integrated into the neighbourhood's landscape design, responsibilities are shared with the municipality. While the day-to-day use and maintenance of these features involve residents and local organisations, their functioning is subject to regulatory frameworks concerning water quantity, drainage, and flood safety. This layered arrangement reflects the Dutch system of water governance, in which local initiatives operate within institutional structures that ensure hydraulic safety and environmental standards at a regional scale.

Lanxmeer also includes a five-hectare urban farm, Caetshage. It is a key component of the neighbourhood's urban development plan, combining food production with care, educational, and recreational functions. Since 2006, the farm has been operated by a couple living on site under an agreement with the Caetshage Foundation and the municipality. The not-for-profit foundation, overseen by a board of four volunteers, ensures that its development aligns with its social and sustainability aims.

Numerous human actors were involved in the development of each housing project. The Municipality of Culemborg acted as commissioner for the first 100 homes, while semi-public housing corporation Kleurrijk Wonen developed the social housing. The remaining housing projects were carried out through private commissioning (CO), collective private commissioning (CPO), or by project developers, with input from a range of architects and contractors.

Residents were responsible for conceiving and creating the shared gardens. In several cases, they were supported by external professionals, including garden designers, permaculture consultants, and even mediators. The gardens were largely constructed by the residents themselves, occasionally with assistance from professional gardeners or landscaping companies. Maintenance is primarily carried out collectively, with professional help sought only for more demanding tasks.

Each courtyard is self-governed by its residents, in accordance with the residents' agreement, which is typically the only formal document regulating courtyard management. Homeowners may also belong to homeowners' associations (Vereniging van Eigenaars, or VvE), legally required under Dutch law and responsible for the maintenance and management of jointly owned property. In some cases, particularly where all dwellings are owner-occupied, the VvE also oversees the shared garden.

In general, residents received financial support from the municipality for the initial implementation of the shared gardens, funded through the neighbourhood start-up budget. Subsequent maintenance is self-funded through small monthly or annual contributions, typically ranging from €30 to €100 per household per year. In most cases, a rotating resident acts as treasurer.

Courtyard administration often involves further division of roles. Residents may appoint a chairperson and a secretary, and a small group typically forms a committee to oversee the shared garden's affairs. This includes organising collective gardening days, allocating seasonal maintenance tasks, and coordinating responsibilities. Additional committees may be established for specific purposes, such as organising social events. Each courtyard also designates representatives to the neighbourhood council to convey collective interests and report back to fellow residents.

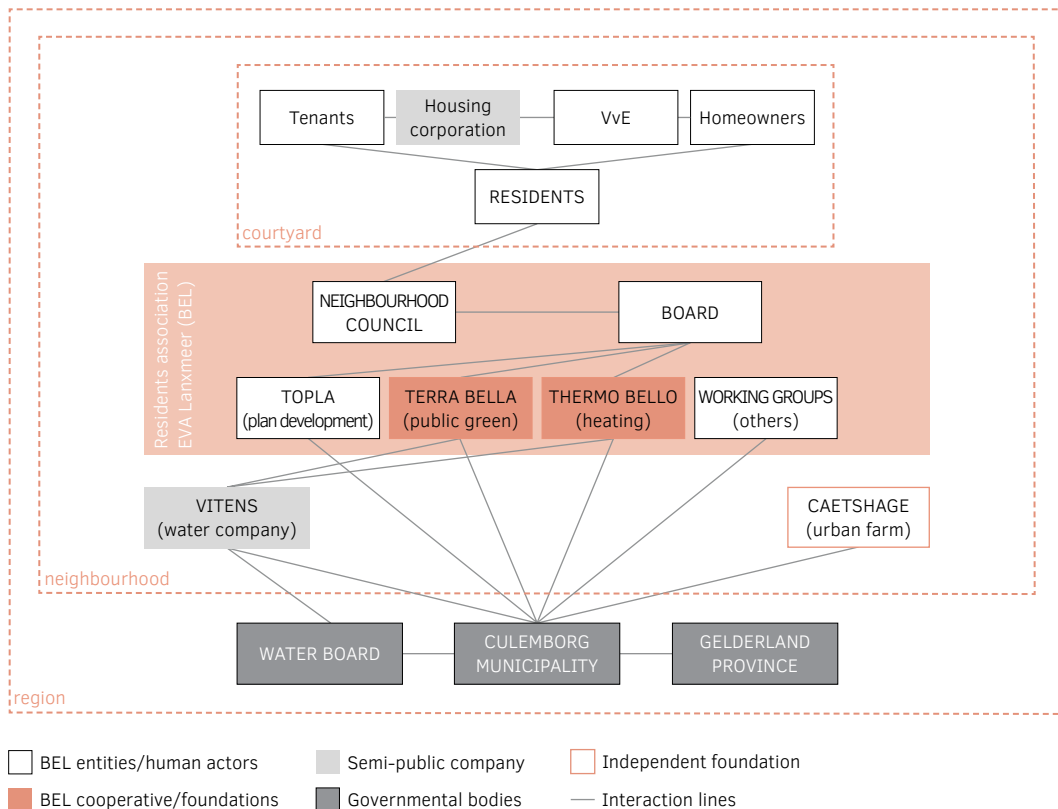


FIG. 3.5 Lanxmeer: formal governance structure, identifying key human actors, their levels of operation (courtyard, neighbourhood, and regional), and the interaction links between them.



FIG. 3.6 Lanxmeer: ownership (left) and maintenance responsibilities (right) of the shared gardens.

In terms of legal ownership, the shared gardens are collectively owned by the households (*mandeligheid*). BEL aims to maintain a minimum of approximately 55 m² of shared garden space per dwelling. However, in the first two completed projects, this proportion is significantly lower, at around 25 m². Individual gardens are privately owned and maintained. Service streets within the courtyards — which contain various (semi)public piping and cable systems — are maintained by the municipality. (Figure 3.6)

In addition to those directly involved in neighbourhood governance, other actors also play a role. These include visitors, passers-by, and students from nearby schools. Although not formally engaged in managing public, shared, or private spaces, their presence nonetheless influences how these environments are experienced and maintained. Through informal interactions with the surroundings, they contribute to the neighbourhood's ongoing transformation.

Beyond human presence, non-human actors also shape the spatial and governance dynamics of the neighbourhood. Sunlight, rainwater, wind, soil, and subsurface conditions define the material parameters within which human and non-human interactions unfold. Likewise, trees, hedges, flowering plants, birds, frogs, moles,

insects, domestic animals, as well as soil bacteria, fungi, and other microorganisms, interact continuously with people and place, influencing growth, maintenance, and patterns of use. While these non-human actors do not possess legal agency in themselves, they are nonetheless empowered through regulatory frameworks that condition spatial practices and decision-making. In Lanxmeer, this includes regulations concerning tree protection and cutting permits, as well as land-use restrictions related to the area's function as a groundwater extraction zone for drinking water. Such legal and institutional arrangements translate ecological properties into binding conditions for development and management, reinforcing the role of non-human actors in shaping both spatial outcomes and governance processes. Recognising these entities as active participants thus highlights the relational nature of Lanxmeer's social-ecological system.

3.1.4 Typical courtyard

Actors characterization

In Lanxmeer, human actors operate across three levels: the housing project, the neighbourhood, and the region. At the housing project level, human actors include residents (both homeowners and tenants), local committees, homeowners' associations (VvEs), housing corporations, third-party professionals, and visitors or passers-by. At the neighbourhood level, additional actors comprise BEL and its associated entities, as well as private companies and foundations. At the regional, key actors include the Municipality of Culemborg, the Province of Gelderland, and the water board (Waterschap Rivierenland). Non-human actors — both biotic and abiotic — operate across all levels, with some exerting a ubiquitous presence. These human and non-human actors hold varying degrees of interest in the shared gardens and differing capacities to influence their spatial composition, either directly or by shaping the actions of others. (Figure 3.7)

The first group of residents typically acts as the main 'players', holding the highest levels of power and interest in shaping shared garden composition. BEL reinforces this position by requiring prospective homeowners to subscribe to the residents' agreement, while TOPLA supports the implementation of EVA-Lanxmeer principles during courtyard formation. Third-party garden designers influence layout through technical expertise and design approaches. The housing corporation Kleurrijk Wonen acts as a key player as the commissioner of the social housing units, and the Municipality of Culemborg similarly held this role for the first 100 homes.

Several actors can be characterised as ‘subjects’, being closely invested in the development of shared gardens while exerting influence primarily in indirect ways. Existing gardens and their spatial configurations often inspired the creation of new ones, and the lived experiences of residents informed governance practices adopted by subsequent courtyard groups. Existing vegetation also played an important role at this stage, influencing architects’ and designers’ approaches to spatial layout, and the integration of gardens within the broader neighbourhood design. The ‘Saving Amphibians’ working group contributed by advocating for amphibian-friendly design measures, such as installing perforated covers on manholes to prevent animals from falling into rainwater drains. Terra Bella occasionally offered advice based on its experience with public green maintenance and oversaw transitions between shared gardens and adjacent public space. Although Vitens did not influence garden design, it maintained a clear interest in ensuring high soil permeability across the neighbourhood in relation to groundwater protection.

Some actors primarily set the conditions under which the gardens develop. Architects, through their building designs, determine the spatial configuration of the courtyards — an important factor shaping the potential layout of the gardens. Likewise, abiotic non-human actors — particularly, rainwater, wind, and soil — influence decisions related to building orientation, entrance placement, and surface permeability. Gardeners and consultants contribute technical expertise that informs early choices about garden composition. At a regional level, the Province of Gelderland and the Municipality of Culemborg exert institutional power through planning frameworks and infrastructural requirements, complemented by the regulatory role of the water board in matters of water management and drainage.

At this stage, the remaining actors fall into the category of the ‘crowd’, holding minimal interest and limited power in shaping the shared gardens. These include Thermo Bello (the private heating company), the Caetshage urban farm, contractors, and occasional mediators who facilitate dialogue among residents during the design process.

Over time, the constellation of actors and their levels of power and influence shift. Residents remain the principal players, but internal dynamics evolve: homeowners and garden committees typically hold the greatest interest in, and power over, shaping the garden’s spatiality. In courtyards not managed by a VvE, some tenants share this influence, as the housing corporation often appoints one of them to represent its interests in garden-related matters. Meanwhile, the vegetation — originally selected and planted during garden implementation — gradually acquires negotiating power through processes of growth, decay, and spatial dominance.

Garden fauna also enter the negotiation arena, albeit with less influence than flora, yet still capable of influencing gardening decisions. Domestic animals and small urban wildlife are often welcomed through the actions of key players, who provide shelter and facilitate their movement through the garden. They are also responsible for temporarily modify the garden's physical space. Lawns, for instance, may show signs of activity — such as mounds or holes — left by dogs and moles. Over time, BEL and TOPLA shift into the category of subjects, as their regulatory influence and advocacy diminish. In courtyards where the shared garden is managed by a VvE, tenant involvement in garden affairs tends to decline.

Sunlight, rainwater, wind and soil continue to act as context setters, alongside gardeners, water board and the Municipality of Culemborg. The Province of Gelderland was involved during the initial development of the neighbourhood but appears to have no role thereafter. While architects withdraw from the ongoing dynamic, other actors emerge. In Lanxmeer, students from nearby schools often use the shared gardens as informal leisure spaces, which they typically lack elsewhere. Through disturbances such as noise and litter, they can influence decisions regarding the physical configuration of the gardens. Remaining visitors and passers-by, including younger schoolchildren, may enjoy the gardens but appear to have little power or interest in their development.

Taken together, the power–interest–influence grid highlights the relative stability of residents' central role in shaping shared gardens in Lanxmeer, alongside a gradual reconfiguration of other actors' positions over time. While residents consistently remain the main players, the analysis shows that the initial development phase is shaped both by institutionally driven influence and by non-human context setters such as sunlight, soil conditions, and hydrology, which strongly condition early design decisions. Over time, influence shifts towards more internally negotiated dynamics at the courtyard level. At the same time, non-human actors, particularly vegetation, gain influence as gardens mature, introducing new forms of negotiation that are not easily governed through formal decision-making alone. The grid thus illustrates how garden transformation in Lanxmeer is shaped less by single actors than by evolving constellations of human and non-human agency.

Configuration, ownership and maintenance

Courtyards in Lanxmeer are typically composed of housing units and their storage sheds — including apartments, housing rows, semi-detached, and stand-alone houses — alongside individual and shared gardens. In the northern courtyards, an internal service street is also included. Bicycle racks and limited parking spaces are often located within or adjacent to the courtyard.

Where shared and private garden surfaces meet, ownership and maintenance responsibilities may overlap. Households maintain their own private gardens, while shared gardens are collectively cared for, and internal streets remain under municipal responsibility. In most northern courtyards, a narrow strip along the outer edge of the private gardens is collectively owned but maintained by individual households. This arrangement allows for collective decision-making regarding the courtyard's outer perimeter, including the edges facing the public realm. (Figure 3.8)

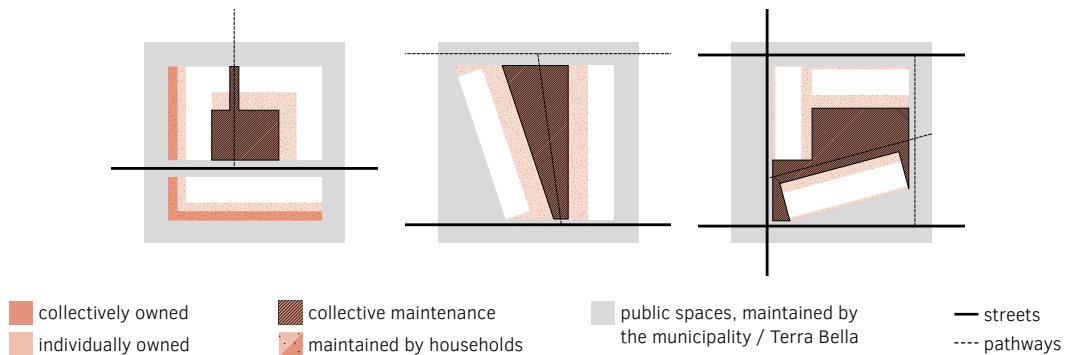


FIG. 3.8 Lanxmeer courtyards: diagrams of ownership, use, and maintenance responsibilities for typical courtyards in the northern (left), southern (centre), and western sectors (right).

Participation in garden transformation

Participation in garden transformation — and the responsibility for it — depends on both the characteristics of the actors involved and the spatial zones within the courtyard. In Lanxmeer, gardens are typically structured into three main zones: individual, shared, and public. The individual zone refers to privately owned front and backyards. The shared zone corresponds to the collectively used garden space within each courtyard. The public zone includes areas that are publicly accessible and officially managed by the municipality. (Figure 3.9)

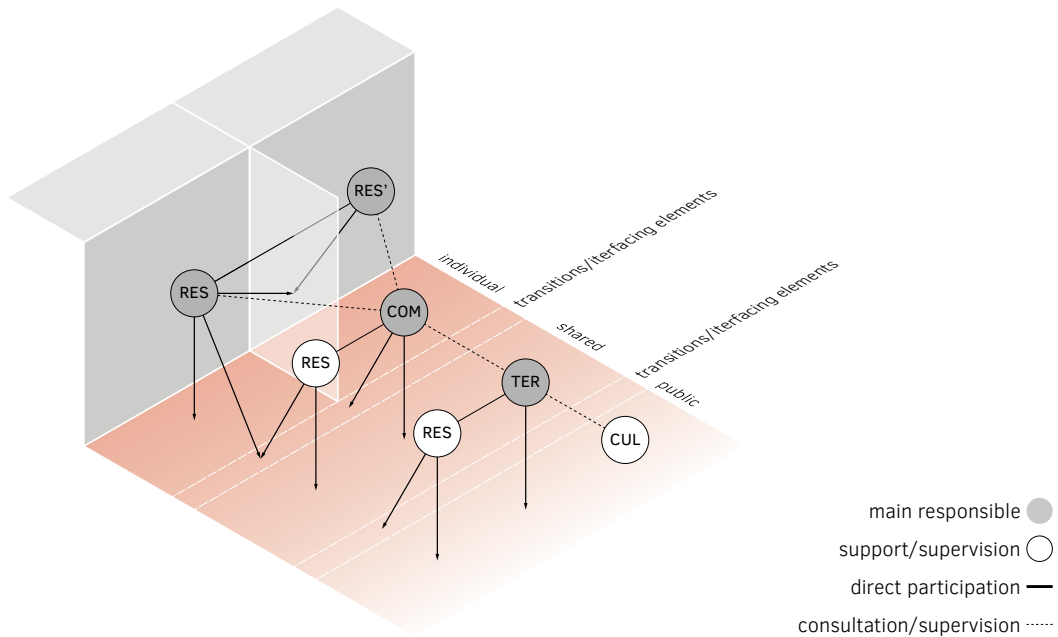


FIG. 3.9 Lanxmeer courtyards: typical patterns of responsibility in managing individual, shared, public, and transitional garden zones. RES/RES' = residents, COM= community, TER = Terra Bella, CUL= Municipality of Culemborg.

In general, responsibilities for managing these zones are assigned as follows:

- Individual gardens are maintained by the respective homeowners or tenants.
- Shared gardens are managed by the courtyard community. In most cases, a garden committee of three to five residents organises collective gardening days, coordinates seasonal maintenance tasks, and delegates responsibilities — sometimes also managing budget-related matters.

- Vegetated areas in public space are managed by Terra Bella, which prepares an annual management plan and shares it with the municipality.

In addition to these primary zones, four transitional zones exist, each requiring coordination among different actors:

- Between two individual zones: Responsibility lies with the adjacent homeowners or tenants, in accordance with the residents' agreement.
- Between individual and shared zones: Responsibility is shared between the adjacent residents and the courtyard community. In some cases, the community manages this strip in consultation with residents, as it lies directly in front of their homes. In other cases, full autonomy is granted to those residents.
- Between individual and public zones: Responsibility lies primarily with the homeowners or tenants, though Terra Bella informally oversees these areas. If the condition of a zone negatively impacts public space — for instance, in terms of safety or coherence with EVA-Lanxmeer principles — Terra Bella may intervene by offering advice or applying pressure to ensure proper maintenance.
- Between shared and public zones: Responsibility is assigned to the courtyard community, though Terra Bella may again monitor and influence the condition of these areas when necessary.

Beyond formal responsibilities, a range of human and non-human actors influence garden transformation. Their level and mode of participation generally correspond to their position within the power-interest-influence grid (i.e. as players, subjects, context setters, or crowd), though notable exceptions exist.

- Players typically participate directly. They are either decision-makers who may also engage in gardening (e.g., residents and garden committees), or they constitute part of the garden's materiality and spatiality (e.g., plants).
- Subjects usually participate indirectly, exerting influence on players. In some cases, non-human subjects (e.g., domestic animals) may temporarily and directly alter specific parts of the garden.
- Context setters may participate either directly or indirectly. Sunlight, rainwater, and soil continuously shape the garden's transformation. Gardeners may be directly involved in maintenance under residents' guidance, while others (e.g., school teenagers) may influence decisions through their presence or behaviour.

- The crowd generally does not participate in garden transformation. However, in specific cases, they may influence players' decisions, particularly when their presence generates responses from residents.

Typical interactions

At the courtyard level, procedural planning typically takes the form of a meeting held either exclusively with committee members or open to all residents (i.e., a courtyard meeting). Usually convened in December or January, these meetings serve to define the annual schedule for the courtyard, including social events and maintenance activities. Key dates are agreed upon in advance, alongside a general outline of gardening tasks and the assignment of responsibilities among residents. Outcomes are usually documented in meeting minutes and formalised in written schedules.

Procedural responses are triggered when a resident raises a concern — either by directly approaching committee members or presenting the issue during a courtyard or committee meeting. The matter is then discussed collectively, often in a special meeting open to all residents. Decisions may be made by majority vote, supermajority, or full consensus. In some cases, a follow-up meeting is scheduled to allow time for reflection and informal negotiation before voting. Door-to-door surveys may be conducted beforehand or between meetings to gather opinions. To facilitate consensus, committee members or engaged residents sometimes approach individual households to better understand concerns and explore possible compromises.

Informal interactions also play a key role in garden transformation. Informal planning commonly occurs when residents agree in advance to hold collective gardening days at regular intervals (e.g., once per season), but without fixed dates or assigned tasks. A similar approach is adopted by Terra Bella in overseeing transitional zones between public and private or shared spaces. While the organisation regularly monitors the edges of the gardens, its interactions with residents and communities are often informal.

Actors may also respond informally to emerging or unforeseen issues. Residents might casually discuss a matter in small groups and agree on a course of action on the spot — for example, deciding how much to trim a shrub or spontaneously holding a gathering that leads to rearranging furniture. Sometimes, actions are taken based on individual initiative or tacit agreement. Interactions with the environment may also occur non-verbally or even unintentionally, such as when an overgrown hedge gradually encroaches on an underused pathway.

Gardening: between procedural and informal interactions

Procedural and informal interactions are not mutually exclusive. In most gardens, both modes coexist and often overlap within the same activity. Gardening, in particular, offers a valuable lens through which to observe how the balance between these interaction modes shifts over time.

Gardening can be either a collective or individual activity. Collective gardening typically occurs during designated days, usually lasting half a day — either a Saturday or Sunday morning or afternoon. These events begin with a brief meeting to review tasks and assign roles, sometimes following a predefined schedule. Gardening days often end with a social moment involving drinks and food.

Participation varies widely, ranging from 10 to 80 per cent of households, depending on factors such as weather and personal availability. Contributions are diverse: some residents engage in gardening tasks, others focus on cleaning, while some prepare refreshments and snacks. More experienced gardeners often guide those with less experience. Children usually play nearby, occasionally helping with light tasks under supervision. Adults tend to be most involved in gardening when they have young children or after their children have left home; teenagers are generally the least involved. Lawn mowing is most commonly undertaken by adult male residents.

In some gardens, the procedural approaches established early on remain largely intact, requiring only occasional adjustments. More commonly, however, communities gradually shift toward simpler routines — with fewer scheduled gardening days or, in some cases, a complete move away from formal procedures. Over time, a more informal approach tends to emerge, with activities coordinated shortly in advance through digital messaging and decisions made on the spot. This informalisation is made possible by the residents' growing familiarity with the space and the trust developed through shared experience.

Even in gardens where procedural approaches remain dominant, informal interactions continue to play an important role. New issues often arise during gardening days and are typically addressed through casual, on-the-spot conversations.

Individual gardening takes place within private gardens or in transitional zones between individual and shared or public areas — particularly when prior agreements assign responsibility to specific households. In some instances, parts of the shared garden are also entrusted to individual households. These areas are maintained independently and according to each resident's own schedule, often fostering informal interactions with neighbours as well as non-verbal exchanges with non-human actors.

While these roles and interactions generally apply across Lanxmeer, variations do exist. These will be addressed in the garden-by-garden discussion in the following sections.

3.2 North garden complex

The northern complex comprises five shared gardens: Vasalishof, Nesciohof, Toon Hermanshof, Lodewijk van Deyssehof, and Het Kwarteel. Its configuration stems from the polder pattern and former paths. The polder structure informed the orientation of the main streets and housing blocks, while perpendicular streets followed an old pathway. This produced smaller gardens (Vasalishof and Nesciohof) alongside larger ones (Toon Hermanshof, Lodewijk van Deyssehof, and Het Kwarteel). (Figure 3.10)

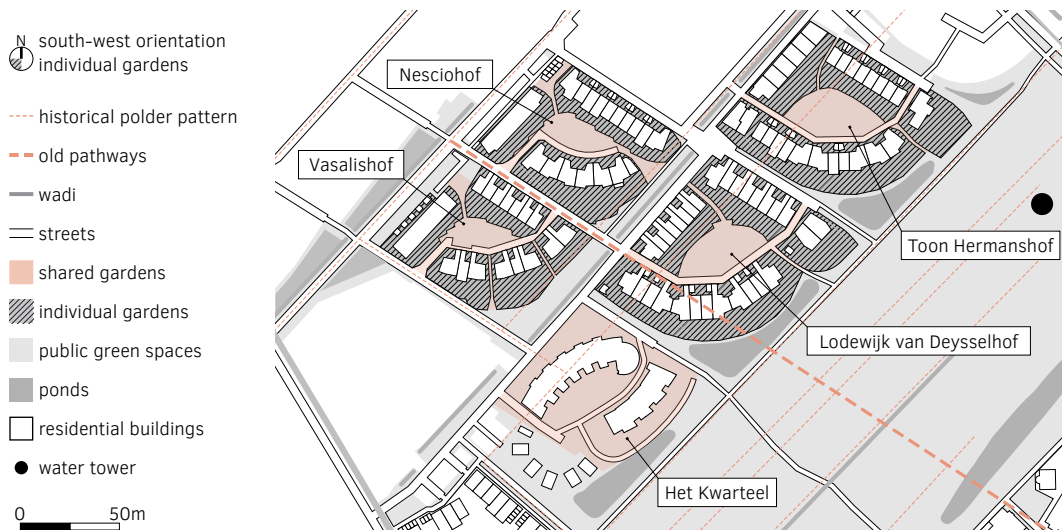


FIG. 3.10 North garden complex: context, overall urban form, and the names and locations of shared gardens.

Within each project, houses located along internal streets are accessed directly from those streets, whereas others have their main entrances on external streets. This spatial arrangement affects the orientation of private gardens: dwellings on internal streets have private gardens facing outward, while those on external streets have gardens oriented inward. The layout reflects a deliberate design choice to

orient living rooms and gardens towards the south-west, in line with contemporary principles of sustainability and energy efficiency. The remaining space in each project was designated as a shared garden, each featuring a distinct design.

The first four gardens were designed by Hyco Verhaagen (Copijn Utrecht), who also contributed to the neighbourhood's urban development plan. A landscape architect trained at Wageningen University & Research (1981), Verhaagen was involved due to his experience with ecologically informed, community-oriented projects. His design approach is grounded in site-specific conditions and existing landscape structures, and he collaborated with residents through participatory workshops to inform the garden proposals. (Verhaagen, n.d.)

For the gardens in Lanxmeer, he aimed to create dynamic and inclusive spaces, combining areas for social interaction and play with quieter zones for rest and reflection. This spatial differentiation was intended to accommodate users of all ages and varying needs. As a result, each garden included a mix of open and enclosed areas, along with distinct places for sitting and playing.

The design plans for Vasalishof and Nesciohof were the first to be developed in the neighbourhood. A mediator supported residents in articulating their ideas to one another and to the designer. For the subsequent gardens, Toon Hermanshof and Lodewijk van Deysselhof, residents built on the lessons from these earlier experiences and prepared a nearly complete concept themselves after an excursion to gardens in Utrecht led by permaculture specialist Peter Peels (1950-2007). Residents' preferences varied — some favoured ecological, low-maintenance solutions, while others preferred a more ornamental style. The designer worked to reconcile these differences within a cohesive design, giving each garden a unique character.

The last garden in this complex, Het Kwarteel, was designed by an appointed group of residents in consultation with the building architect Hiltrud Pötz (OpMAAT), who had been involved in the early conceptualisation of the EVA-Lanxmeer Foundation. Trained as an architect at TU Delft (1988), Pötz works in the fields of sustainable, climate-responsive, and future-oriented architecture and urban development. Her practice involves interdisciplinary collaboration and stakeholder engagement, with an emphasis on integrative and people-centred design processes.

Together, these design approaches established the foundation for the North complex, which became both a testing ground for participatory design and a place where varying interpretations of ecological and communal values were realised.

3.2.1 Vasalishof

Vasalishof is a shared garden of approximately 575 m², designed by Hyco Verhaagen and realised in 2000. A striking feature immediately captures the visitor's attention: an undulating brick wall that divides the garden into two parts. The more open side, adjacent to the service street, contains a lawn, a tree, an herb garden, and a water pump. Behind the wall, in the more enclosed area, the garden is characterised by numerous flower and fruit bushes and narrow, winding paths. A sitting area with a table and chairs is tucked between the wall and a thick hedgerow, accessible through an archway in the wall. The boundaries between the private and shared gardens are defined primarily by hedgerows and subtle changes in level. (Figure 3.11)

The garden has three main access points: a Y-shaped pedestrian path to the north — which passes through a pergola and a small grove of young trees arranged in two rows — and the two ends of the internal street. Two additional pedestrian routes run along the semi-detached houses on the southern side of the project.



FIG. 3.11 Vasalishof: bird's-eye view (adapted from Komen, 2016) and impression of the garden (BEL, n.d.)

- axis
- - - derived lines
- ⋯ auxiliary lines
- wall
- + arc centre
- └ built-in elements
- buildings
- ▒ individual gardens
- ▓ planted surface
- ▒ paths (soft covers)
- ▓ paths (hard covers)

- ▲ entrance
- ▨ gardening
- ▒ social interaction
- ▓ sensory experience
- ▒ pathway
- boundaries housing complex

- - - see-through boundaries
- boundaries (walls)
- ▒ element above eye level
- ▓ pathway
- ++ enclosed
- ++ open

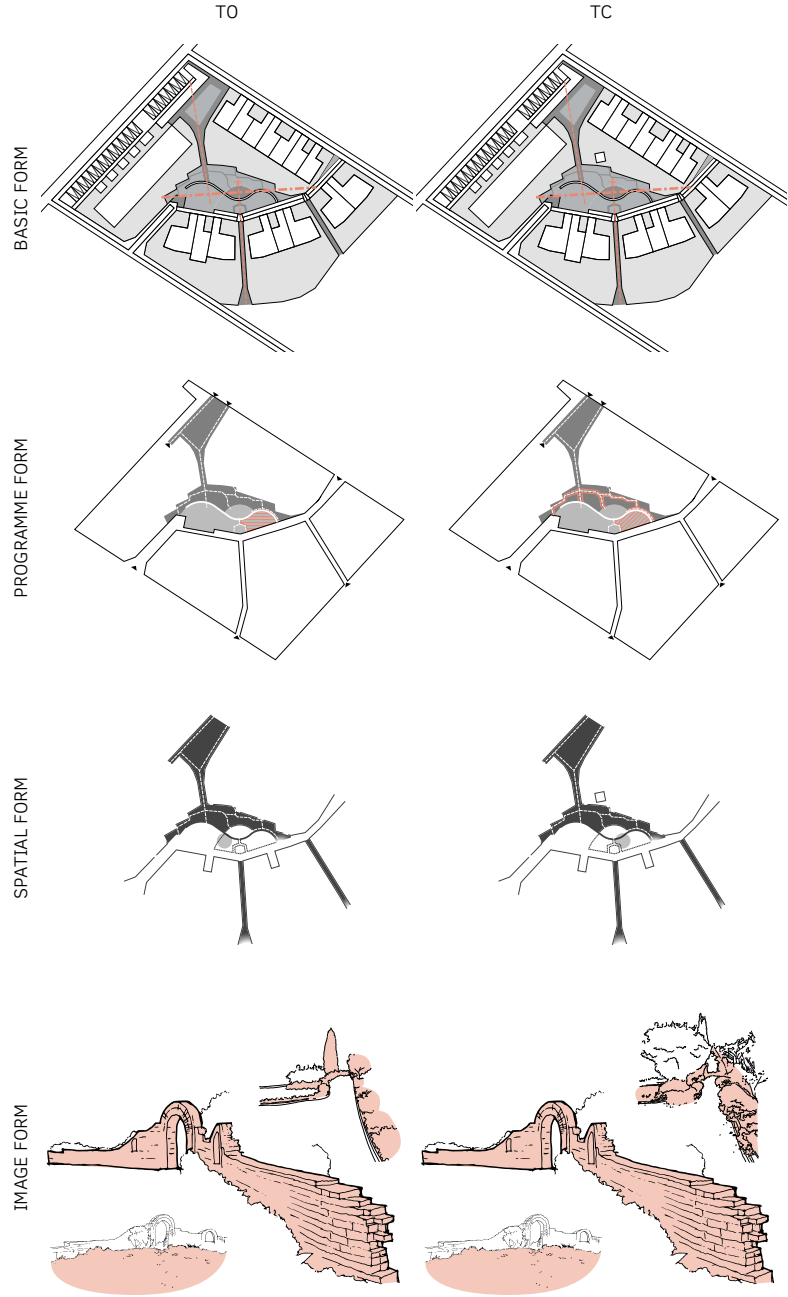


FIG. 3.12 Vasalishof: compositional forms over time.

Compositional forms

In the case of Vasalishof, TO denotes the original design plan from 2000, while TC refers to the garden as found in 2023.

In both TO and TC, the basic form is organised along a longitudinal axis that divides the space into two parts. This axis intersects with two perpendicular access routes, creating a sequence of 'rooms' that has remained unchanged over time.

The enclosed garden provides a place to explore sensory experiences, while the sitting area and herb garden offer opportunities for social interaction among adults. Over the years, gardening areas have expanded beyond the herb garden into the borders of the pathways, where many flowers continue to be planted. The lawn fulfils multiple roles, supporting community activities and offering an open space for children's play. Between these spaces, a low brick wall functions as both a spatial divider and a playful element, over which children climb and play hide-and-seek.

The spatial form balances open and enclosed areas, with enclosure concentrated in the northern section. This sense of enclosure is reinforced by the undulating brick wall running along the longitudinal axis. A few years ago, one household built a shed at the boundary between a private garden and the shared space, marking the most significant transformation in terms of spatial form. Beyond this intervention, changes have primarily resulted from vegetation growth, the heightening of hedgerows, and the relocation of a tree that was originally designed for one position but planted elsewhere.

The images of the two garden sections differ markedly, almost as if forming two distinct gardens: the enclosed area is colourful and rich in texture, while the open side is characterised by a minimalist lawn. Taken together, the garden's image form strongly references English horticultural traditions, with visual elements such as brick arches and pergolas. Although the garden has undergone changes in colours and textures, this horticultural reference remains. (Figure 3.12)

Actors and interactions

Vasalishof combines 14 rental apartments with 15 owner-occupied homes, and both groups participate actively in the courtyard's collective life. Over the years, Vasalishof has seen some resident turnover, although most dwellings are still occupied by first-generation residents. They are supported by a garden committee, which coordinates four gardening days each year, and are overseen by a court manager, who convenes residents twice annually to discuss garden maintenance

and matters related to the neighbourhood council. Responsibility for minute-taking rotates among participants, while the roles of chairperson and treasurer remain fixed. The residents also organise an annual summer party.

When unforeseen issues arise, decisions are usually made in a meeting and settled by a simple majority vote. This was the case when a resident built a shed in their private garden, and when frequent visits by teenagers from nearby schools led to the removal of a bench previously located on the lawn.

Among the non-humans, sunlight has played a significant role. It interacts with the wall to create shaded areas, where fruit and flower bushes often struggle to thrive and are therefore frequently replaced. These plantings attract many bees and other insects, especially during spring and summer. One tree planted as part of the original design eventually failed and was removed, with a replacement positioned elsewhere near the herb garden, which itself was established differently from the designer's original plan. (Figure 3.13)

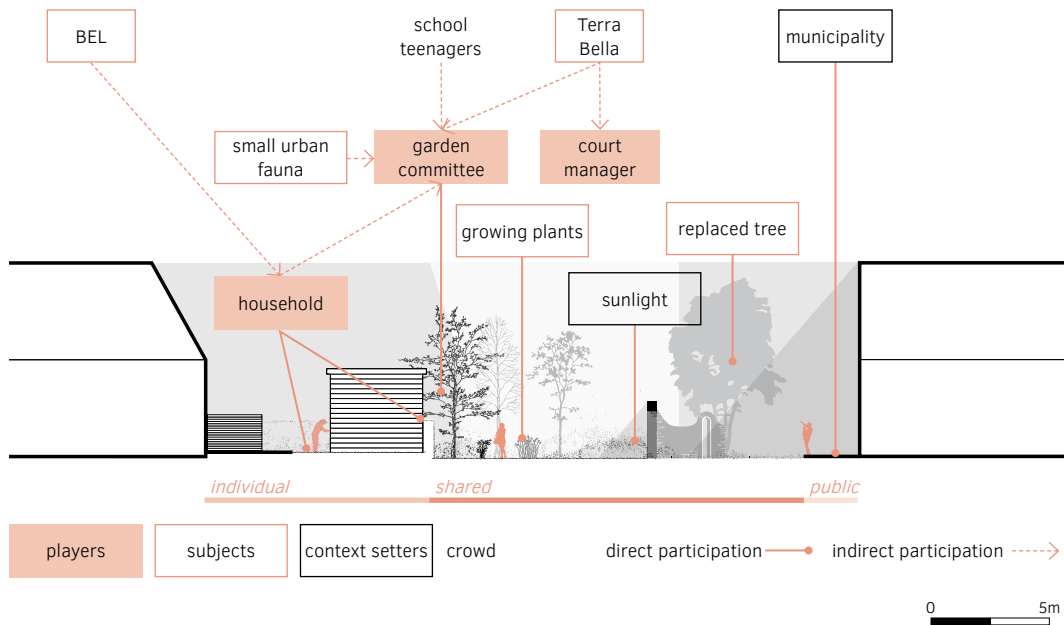


FIG. 3.13 Vasalishof: participation in garden transformation and noteworthy interactions.

3.2.2 Nesciohof

Also designed by Hyco Verhaagen and realised in 2000, Nesciohof covers approximately 690 m². Despite its relatively small size, its spatial organisation is clearly articulated. At its centre are two asymmetrical, almond-shaped 'rooms', later nicknamed by residents as the 'Picasso eyes'. There are three access points: from the east through an enclosed pathway, from the south via the service street, and from the north under a pergola, now being reconstructed. Subtle height differences are also present, particularly in the transition from the shared area to the northern row of houses. (Figure 3.14)



FIG. 3.14 Nesciohof: bird's-eye view (adapted from Komen, 2016) and impression of the garden (BEL, n.d.)

- axis
- - - derived lines
- ⋯ auxiliary lines
- wall
- + arc centre
- └ built-in elements
- buildings
- individual gardens
- planted surface
- paths (soft covers)
- paths (hard covers)

- ▲ entrance
- ▨ gardening
- social interaction
- sensory experience
- ▨ pathway
- boundaries housing complex

- - - see-through boundaries
- boundaries (walls)
- element above eye level
- ▨ pathway
- ++ enclosed
- ++ open

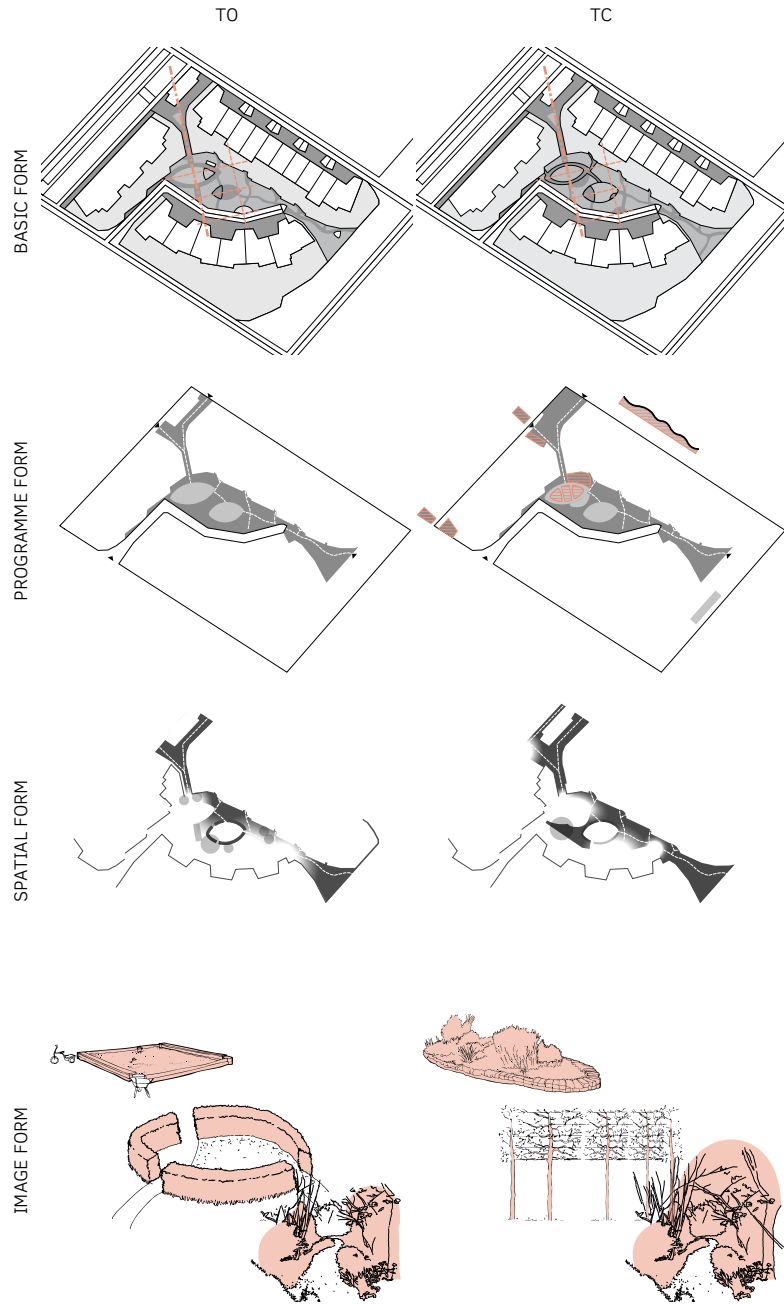


FIG. 3.15 Nesciohof: compositional forms over time.

Compositional forms

The analysis of Nesciohof distinguishes between the original design plan from 2000 (TO) and the garden as observed in 2023 (TC).

The northern access path establishes a strong axis along which two similar spaces are arranged. This basic form remains clearly recognisable after 25 years.

A central space serves as a place for socialising and eating together, with a communal table and a pizza oven. An adjacent space was designed for children and, for many years, included a large sandbox at its centre. Today, this area features a planting bed where residents grow flowers and edible plants.

Compared to Vasalishof, the contrast between enclosed and open areas is more subtle. Here, the boundaries of the spaces are defined primarily by surrounding vegetation, including shrubs, hedgerows, and small trees. The central space was originally designed to be enclosed by thick hedgerows; however, during implementation residents opted instead for espaliers, keeping the space visually connected to the service street.

As in the neighbouring Vasalishof, the horticultural character is strong, reinforced by the pergola, the espaliers, and the communal planting bed. By contrast, the enclosed eastern entrance evokes the image of a dark forest path. (Figure 3.15)

Actors and interactions

All 16 houses and 10 apartments in Nesciohof are owner-occupied. While first-generation residents remain strongly represented, turnover has been higher in the apartments, where not all residents are equally involved in court life. Governance is supported by a garden committee, together with a chairperson, secretary, and treasurer, who meet four times a year to discuss the budget and maintenance. Once a year, all residents gather to decide who will take responsibility for different parts of the garden and to set the agenda, which includes collective workdays and social events. The agenda is then displayed on a notice board attached to a centrally located façade.

Residents organise festivities throughout the year, including a summer party and a pétanque competition with other courts. For this purpose, they advocated for and continue to maintain a pétanque field in the adjacent public space.

Decisions on emerging issues are made in two steps: a first meeting for discussion, followed two weeks later by a second meeting for a final decision by full consent. This approach was followed when replacing the communal table, handmade by a resident, and again in 2015 when remodelling the garden. At that point the garden had become too dark, the large sandpit was underused, and most children had left the court. A landscape designer, Marjorie van den Bosch, was hired to prepare a new planting concept, which residents have been implementing gradually themselves.

Nesciohof residents enjoy gardening and maintain a vegetable garden next to the neighbouring school. They also engage in composting practices. They sometimes informally lend part of their private gardens to neighbours for small independent projects, usually arranged through casual conversation. More commonly, they plant flowers in the tree beds of the public spaces around the courtyard. (Figure 3.16)

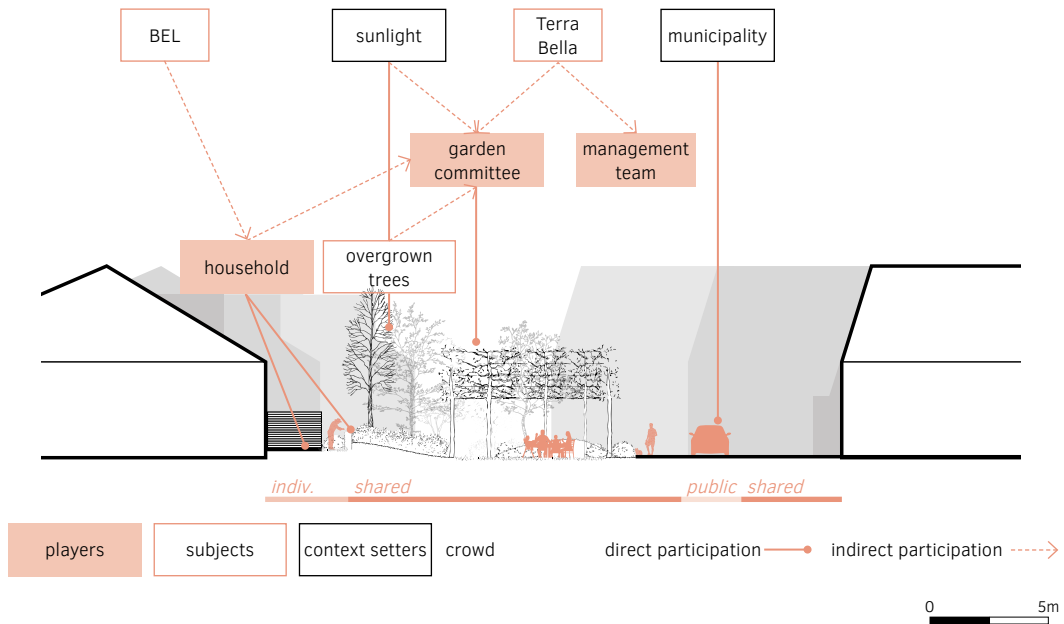


FIG. 3.16 Nesciohof: participation in garden transformation and noteworthy interactions.

3.2.3 Toon Hermanshof

Designed by Hyco Verhaagen together with the residents in 2002, Toon Hermanshof is a shared garden of over 1,180 m². It is organised around a broad lawn, with an ash tree set slightly off-centre and encircled by a communal table. A transition zone planted with shrubs and small trees surrounds most of this shared space, creating a soft boundary with the private gardens. Along the southern edge, the garden is framed by an arched pergola running parallel to the service street and covered with grapevines. Access is provided from the east and west via the service street, and from the north and south-east through pedestrian paths. (Figure 3.17)



FIG. 3.17 Toon Hermanshof: top view (extracted from Rozendaal, 2025) and impression of the garden.



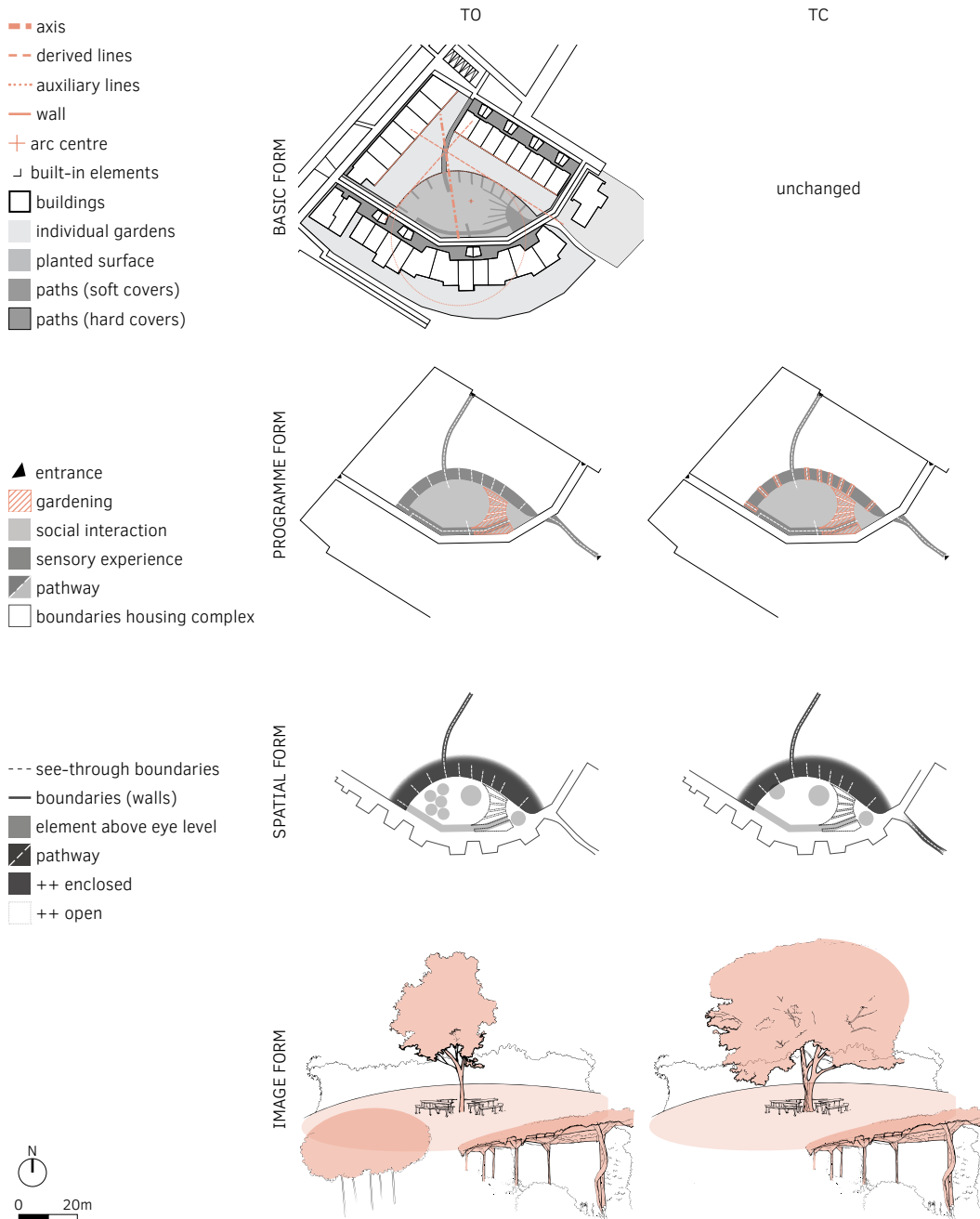


FIG. 3.18 Toon Hermanshof: compositional forms over time.

Compositional forms

In the case of Toon Hermanshof, TO refers to the original design plan from 2002, while TC denotes the garden as found in 2023.

The basic form of Toon Hermanshof is defined by a circular layout, centred on the northern access axis and tangent to the boundaries of the private gardens. This form remains clearly recognisable in the current situation.

The central space functions as a large social and leisure area. While the original design proposed checkerboard playgrounds at both ends of the garden, residents opted instead for a sandpit and a wooden climbing structure. A gardening plot is also located at the eastern edge of this space. Over time, the pathways leading to the private gardens have been actively planted with flowers. Together with the transition zone between private and shared areas, the space beneath the pergola and the pedestrian entrance provide settings more focused on sensory experience.

The central area is a large open space structured by the prominent ash tree at its centre and by the pergola along the southern edge. In the original design, a cluster of small trees was planned on the eastern side; however, these were not planted, resulting in a more open central space. As a consequence, the most enclosed part of the garden is the transition zone bordering the private gardens.

The garden's image is strongly shaped by the centralised open space, which is reinforced by the pergola with grapevines and by the densely planted edges. This configuration gives particular prominence to the central ash tree, which, together with the circular communal seating area surrounding it, anchors the spatial focus of the garden and supports its use as a shared gathering space. In this sense, the image of a centralised communal space has replaced the image of the small orchard envisaged at TO. (Figure 3.18)

Actors and interactions

Of the 28 homes in Toon Hermanshof, 20 are owner-occupied and eight are rental properties. Turnover is low, and the community is mixed, ranging from young families to older couples and single residents.

In the past, there was both a party committee and a garden committee, but these have since merged into a single court committee of 4-5 residents, including a treasurer who manages the annual contribution of €60 per household. The

committee meets once a year to set gardening dates and appoint coordinators for each of the 11 workdays held between March and November. Twice a year, a professional gardener is hired for heavier tasks. There are no longer meetings with all residents, and the committee is now mainly concerned with maintaining the garden. Emerging issues are raised and decided informally. Residents participate in the monthly workdays according to their ability and interest, and share the fruits, berries, and nuts grown in the garden.

Festivities have long played an important role in court life, but gatherings have become less frequent since the coronavirus pandemic. Today, celebrations are organised more spontaneously, with residents taking the initiative to host activities such as the annual summer party, New Year's walks, musical gatherings, and informal drinks and meals.

Non-human actors participate through plant growth and production, shaping routines of care, seasonal work, and the shared harvesting of fruits, berries, and nuts. The central ash tree, in particular, contributes to the character of the garden by influencing light, shade, and atmosphere through its growth and seasonal change, becoming a continuous reference point in residents' everyday experience of the garden. (Figure 3.19)

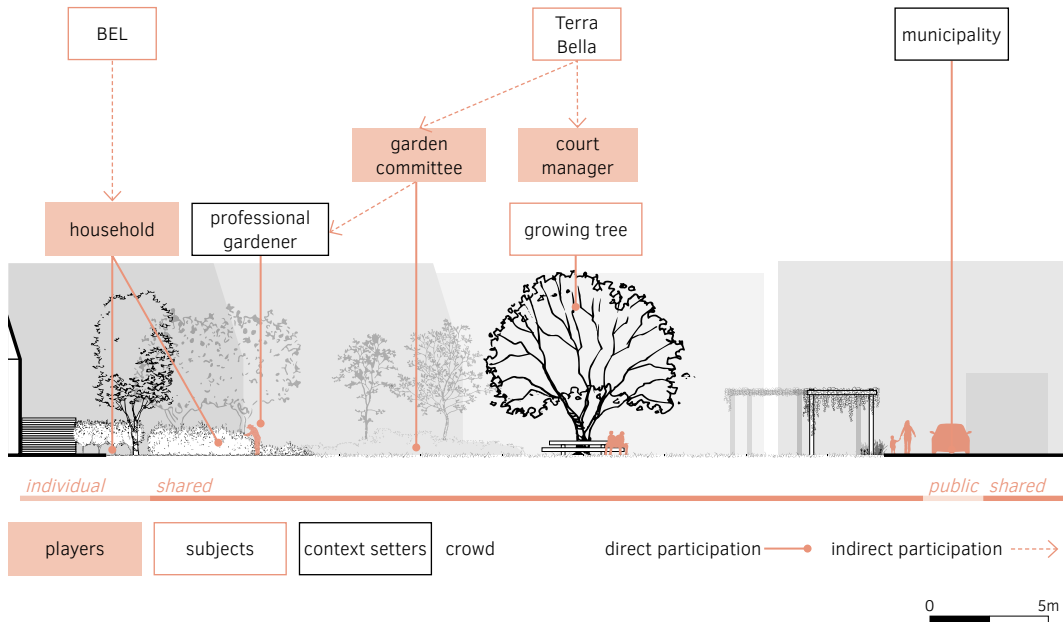


FIG. 3.19 Toon Hermanshof: participation in garden transformation and noteworthy interactions.

3.2.4 Lodewijk van Deyssehof

Similar to its neighbouring garden, Lodewijk van Deyssehof was designed by Hyco Verhaagen together with the residents in 2002. The garden includes a clearly defined buffer zone that separates the open collective space from the private gardens. At its centre lies a large communal open area. On one side of this space, a sandpit is set within the lawn alongside a double swing. On the other side, a seating area is arranged beneath an arbour, with benches placed around an outdoor oven. A planting bed is located at the intersection of the service street and the main pathway, which runs along a north–south axis and functions as the primary pedestrian access through the garden. A secondary access is provided to the south, where the service street crosses the garden, creating additional entrances from both the west and east. (Figure 3.20)



FIG. 3.20 Lodewijk van Deyssehof: bird's-eye view (adapted from Komen, 2016) and impression of the garden (Extracted from Rozendaal, 2025).



FIG. 3.21 Lodewijk van Deysselhof: compositional forms over time.

Compositional forms

In the case of Lodewijk van Deysselhof, TO corresponds to the original design plan, while TC represents the situation as found in 2023.

The basic form of Lodewijk van Deysselhof is roughly outlined by a circular geometry, tangent to lines running parallel to the building façades. This circular area is bisected by a north–south axis aligned with the northern access. In TO, this axis was more strongly articulated through the geometry of the main path crossing the shared garden. Although this articulation has softened over time, the axis remains a clear reference that continues to inform the organisation of other spatial elements.

Programme is distributed along this axis. The eastern side accommodates a communal social space with a seating area beneath the arbour, while the western side functions primarily as a play area, incorporating a sandpit and a double swing. A planting bed adjacent to the service street, visible in TC, replaced an open fireplace area that was present in TO. A transition zone between the shared space and the private gardens also occupies this area, functioning both as a series of small social spaces and as gardening areas.

In spatial terms, the western side of the garden is more open, while the eastern side is more enclosed, shaped by the presence of several trees, a dead hedge, and the arbour added during implementation; a pergola along the street, proposed in the original design, was not realised. The openness of the central lawn contrasts with the buffer zone along the private gardens, which is more densely vegetated and punctuated by small transitional pockets that act as foyers to the individual plots. Both the northern and southern pedestrian entrances offer a more enclosed spatial experience.

The image of the garden is defined by the open lawn framed by a lush planted edge, which emphasises the presence of larger utilitarian elements such as the double swing and the arbour. Set within the broad grassy space, these structures stand out and evoke romantic ideals of communal living. (Figure 3.21)

Actors and interactions

Lodewijk van Deysselhof comprises 30 owner-occupied homes, around half of which are still inhabited by first-generation residents, including Marleen Kaptein, founder of EVA-Lanxmeer. The community is demographically diverse, though with limited cultural diversity. Residents contribute €7.50 per month towards gardening and

maintenance, managed by a treasurer. Participation in gardening days ranges from five to 30 people. Eleven collective gatherings are organised each year, including an annual court party and ten workdays, often ending with shared food or drinks.

In the past, separate party and garden committees existed but gradually merged, and today most issues are resolved informally. This approach has guided decisions such as replacing the original triangular communal table, handmade by a resident of Nesciohof, with three simple picnic tables after it deteriorated, and replacing the former fireplace with a planting bed once smoke became a nuisance. General meetings are no longer held; instead, matters are raised and settled during or around workdays. Disagreements are common but typically resolved through discussion and compromise. Participation varies with life stage: households with school-aged children are generally less involved, while others contribute in different ways. Although the idea that less active residents should pay more towards maintenance was briefly raised, it was quickly abandoned, as residents recognised that contributions to communal life take many different forms. Those with 'green fingers' play a prominent role in gardening, while others offer artistic or practical support.

Children from other courts frequently visit the garden, particularly to use the swing. Occasional disturbances by teenagers from a nearby school prompted the creation of messaging apps to coordinate responses when necessary. Birds, insects, and other wildlife inhabit the dead hedges. (Figure 3.22)

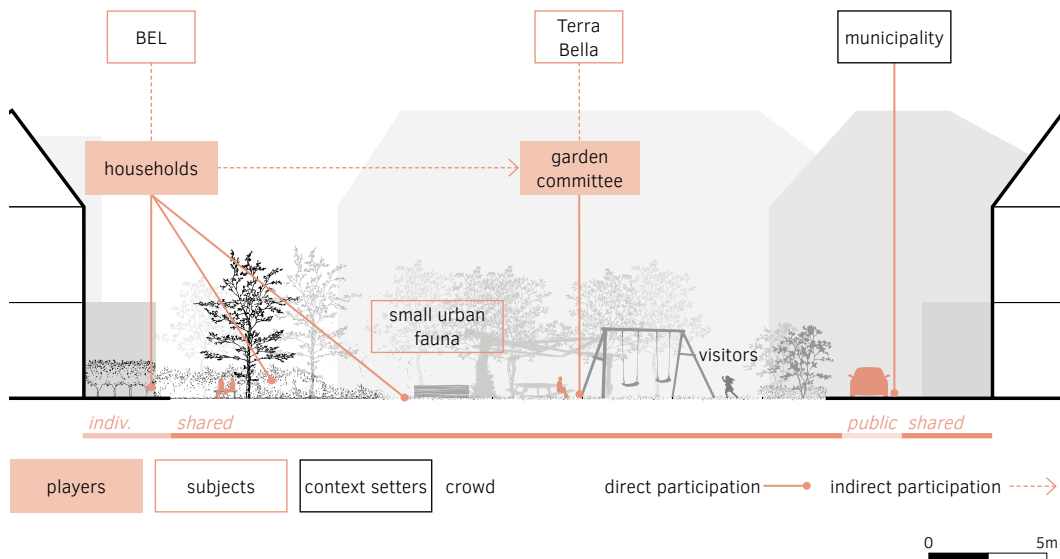


FIG. 3.22 Lodewijk van Deysselhof: participation in garden transformation and noteworthy interactions.

3.2.5 Het Kwarteel

The garden in Het Kwarteel was conceived by the residents in consultation with Hiltrud Pötz in 2003. It stands out from the other gardens in the northern complex not only because of the demographic profile of its residents — all aged 45 or older — but also due to its distinctive architectural configuration. The inner garden is enclosed by terraced three-storey buildings arranged in two curved blocks, one larger and one smaller, connected by an elevated walkway.

The garden is easily accessed from the vehicular street running from south-west to north-east, from which two dead-end streets branch off: one leading directly into the garden, the other running along the exterior side of the ensemble.

The inner garden features a large grassy area with a few trees, bordered by clusters of shrubbery. On the ground floor, private terraces blend gradually into the shared garden, mostly without fences or hedges. The garden also extends along the side of the smaller block, where flowers and herbs are planted and a new terrace with a seating area is currently under construction. Narrower garden strips surround the ensemble: one facing the street and planted with several trees, and another overlooking a pond, where a gradual transition leads from private gardens to a pathway, then into the collective garden and the adjacent public space. (Figure 3.23)



FIG. 3.23 Het Kwarteel: bird's-eye view (adapted from Komen, 2016) and impression of the garden.

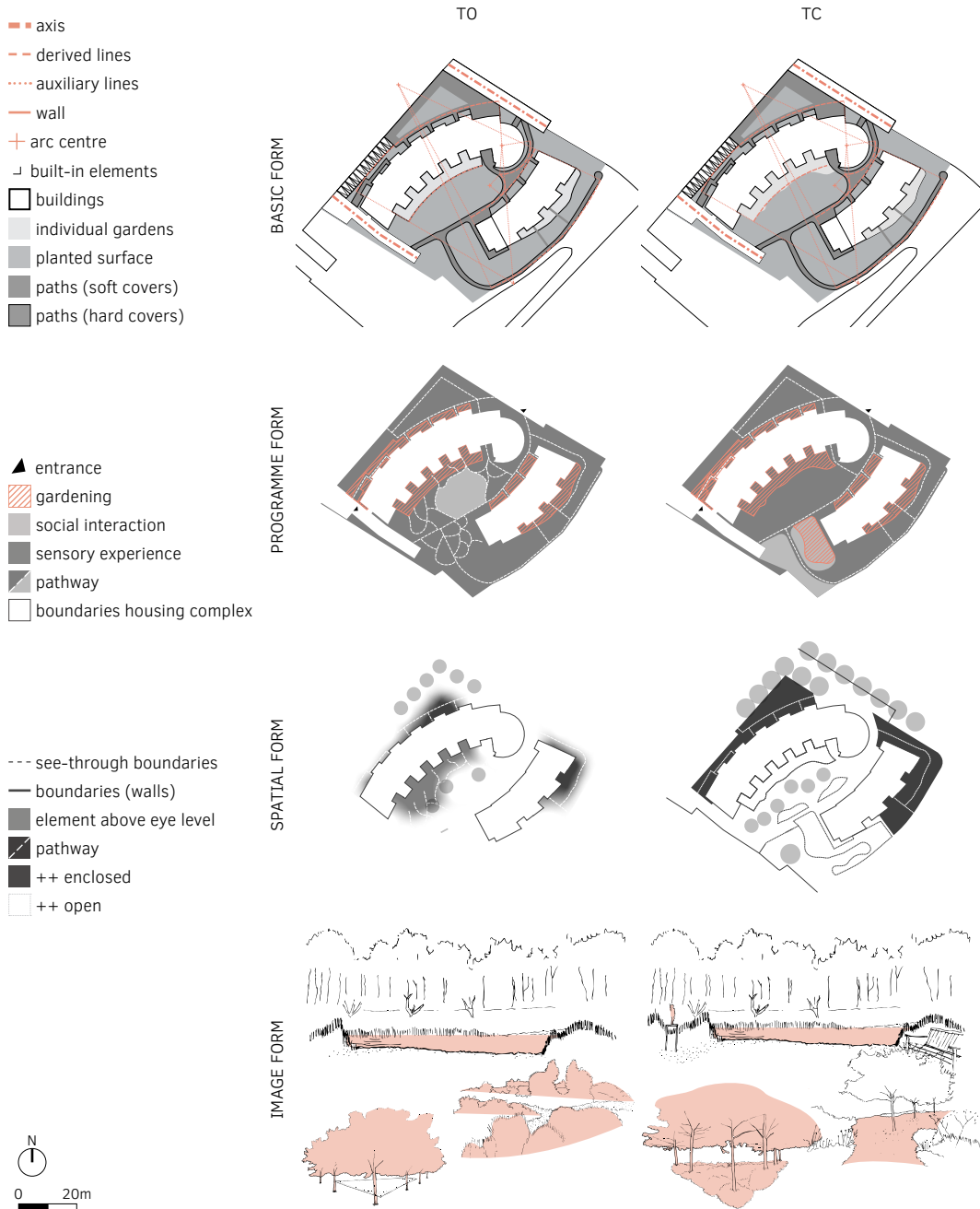


FIG. 3.24 Het Kwartel: compositional forms over time.

Compositional forms

The situation found in 2023 (TC) differs considerably from the one realised 20 years earlier (TO), although the basic form has remained largely unchanged. The surrounding architecture continues to structure the garden, reinforced by paved pathways running parallel to the façades.

In TO, the garden featured a seating area with a few benches in the central lawn, while the remainder of the space was oriented towards sensory experience and gardening was confined to private plots along the façades. In TC, the lawn has been considerably extended and the benches removed, resulting in the entire inner garden acquiring a stronger sensory focus. A new outdoor seating area is currently being developed in the lateral garden, overlooking the area where residents plant flowers and herbs.

The spatial form has changed more substantially. Previously, dense shrubbery, reinforced by the enclosing façades, created a strong sense of enclosure with a gradual transition towards a smaller open lawn. With the expansion of the lawn, the inner garden has become a large open area, in which the boundaries between private terraces and the communal space are more clearly defined. At the same time, vegetation growth along the outer edges of the blocks has made the perimeter feel more enclosed.

The image form has shifted accordingly. Initially characterised by low-maintenance planting and fixed shrubbery framing a lawn, the garden combined a neat appearance with ecological qualities. Over time, the expansion of the lawn and the planting of new trees have given it a more curated, park-like character. On the outer side facing the street, it evokes the image of a grove, while on the opposite side it establishes a strong visual relationship with the pond, reinforced by the addition of a statue and a bench oriented towards the water. (Figure 3.24)

Actors and interactions

Het Kwarteel is a community of 24 owner-occupied apartments, with residents now averaging around 80 years of age. A few years after implementation, a gardener was hired to expand the lawn and plant new trees, which provide safer circulation and pleasant views from the apartments.

The community has formed several working groups to address specific issues. Although some argue these groups should prepare options and consult others before decisions are made, in practice many matters are debated repeatedly in meetings and informally, making decision-making lengthy and contentious. Disputes have included agreements

over the positioning of trees, restrictions on furniture to protect the lawn, and the installation of a new terrace. Because the terrace was designed by a resident's family member, strong personal ties complicated compromise. A statue donated by a former resident also prompted extended debate before residents agreed to place it near the pond, facing the water rather than the garden. Coping mechanisms nonetheless emerged, including hiring external gardeners for specific tasks, purchasing shared equipment such as a lawnmower to reduce costs, and using messaging apps to coordinate responses to disturbances caused by teenagers gathering at the garden's edges.

The communal lawn is rarely used for socialising but is valued as a visual amenity, particularly by less mobile residents. By contrast, the lateral garden and pond edge are more active, with collective planting, new seating, and occasional visits from neighbours in other courts, especially from the adjacent care facility. Teenagers previously gathered under the building's marquee, leading residents to install red wooden barrels to discourage use and reduce litter nuisance.

Plant choices and the proximity of the pond thus stand out as key non-human influences on residents' decisions. The combination of fixed planting and loose lava stones raised safety concerns and led to their replacement with a lawn, whose maintenance subsequently restricted its use as a social space. Trees were planted so as not to obstruct views towards the pond, which also informed the placement of the statue. (Figure 3.25)

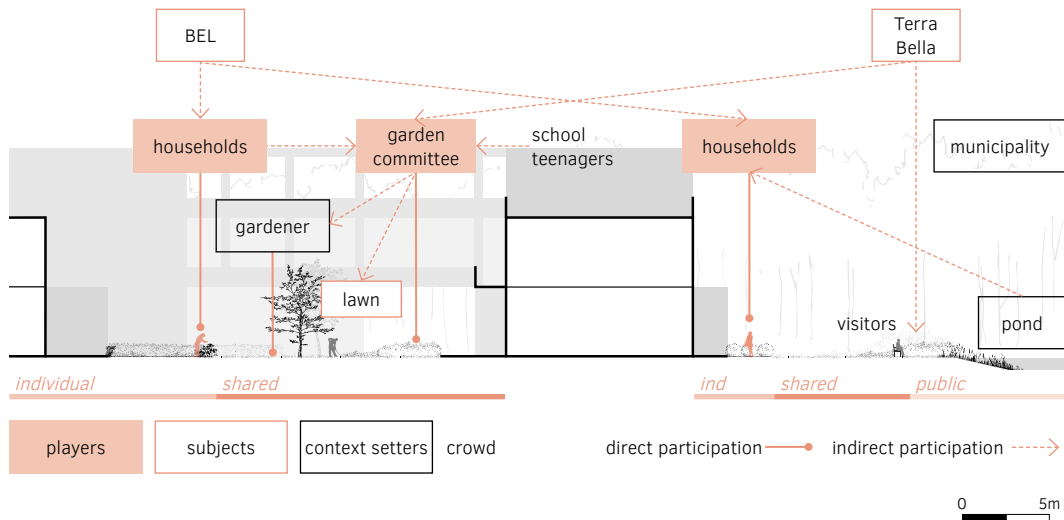


FIG. 3.25 Het Kwartel: participation in garden transformation and noteworthy interactions.

3.3 South garden complex

The south garden complex, also known as 'Pioniersveld', comprises six shared gardens: Kassenhof, Appelhof, Watertorenhof, Waterhof, Achterberghof, and De Trein. As in the northern complex, its layout is strongly shaped by the polder pattern and the alignment of old pathways, which influenced the positioning of buildings in V- and L-shaped formations. This arrangement produced four trapezoidal inner gardens with their shorter sides along the streets and two rectangular gardens with their longer sides aligned with the streets.

In the V-shaped formations (Kassenhof, Appelhof, Watertorenhof, and Waterhof), houses are accessed from external streets, with private gardens oriented inward. The shared gardens occupy the centre of each housing cluster, forming the innermost part of the projects. In the L-shaped configurations (Achterberghof and De Trein), the entrances to houses, apartments, and stairwells are positioned along internal pathways facing the shared gardens, while private gardens are located at the rear of each dwelling. (Figure 3.26)

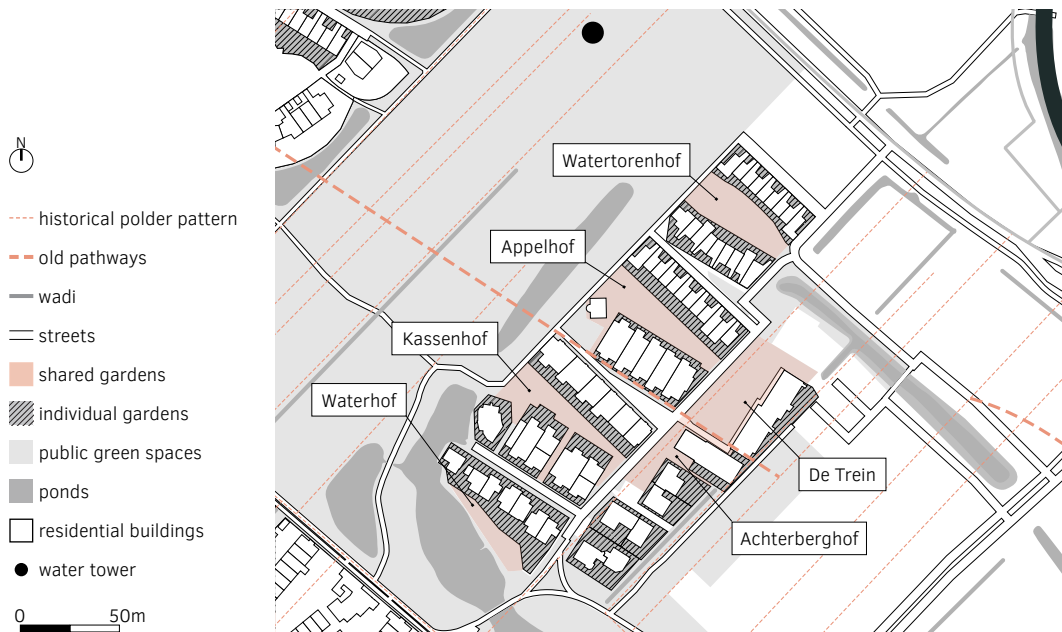


FIG. 3.26 South garden complex: context, overall urban form, and the names and locations of shared gardens.

In Kassenhof, the first group of residents developed the garden after moving in 2002, without a formal design plan. In 2009, with the arrival of new residents and changing requirements, the garden underwent major alterations.

Appelhof and Watertorenhof were conceived around the same time (2003-2004), after the first group of residents had already moved in. Residents from both gardens joined a collective excursion to shared gardens in Utrecht, organised by Niek Hazendonk — a landscape architect trained at Wageningen University & Research (1988) and a resident of Watertorenhof. Following this, Hazendonk led a co-design process in which all residents of Watertorenhof were actively involved. For Appelhof, a design plan was prepared by garden designer Peter Pontier, aligned with permaculture principles.

In Achterberghof, given its compact size, residents initially saw no need for a formal design plan. Later, they applied for funding to support the implementation of their own ideas.

Finally, De Trein was the last garden to be realised in this complex. At the time, homeowners hired a professional gardener, who advised the group and translated their input into a design plan.

3.3.1 **Kassenhof**

Implemented by residents in 2002, Kassenhof's original design was centred on the idea of experiencing water in everyday life. To simulate a stream, a wadi was excavated and a solar-powered pump installed. A pathway ran alongside the wadi, crossing the entire shared garden from the water extraction point to the car street, with a few trees planted along its length. At this stage, there were no individual gardens; instead, residents brought out their own furniture and actively used the shared space as an extension of their homes.

When the second row of houses was built three years later, tensions emerged between the newcomers and the first residents. The former raised concerns about the wadi crossing the garden, seeking a larger area of 'usable' surface, and wished to formalise private appropriation occurring informally in front of the dwellings. These pressures contributed to a reconfiguration that involved both changes in use and in land ownership: part of what had initially been fully shared garden space was formally subdivided into private and collective areas. In this process, the wadi was filled in, and four-metre-deep private gardens were established along the façades.

The remaining communal area was reshaped into a broad lawn incorporating a fireplace and a seating spot, with a pathway linking the two garden entrances to the north-west and south-east. Trees planted in the initial phase were partly incorporated into the newly created private gardens, while additional trees were introduced at a later stage. At present, the shared garden comprises just over 960 m², while approximately 600 m² of the former communal garden area has been converted into individual private gardens. The shared garden remains directly accessible from the backyards of all 12 dwellings. (Figure 3.27)



FIG. 3.27 Kassenhof: bird's-eye view (extracted from Rozendaal, 2025), with an impression of the garden in 2023 (top) contrasted with its original layout in 2002 (bottom, BEL, n.d).

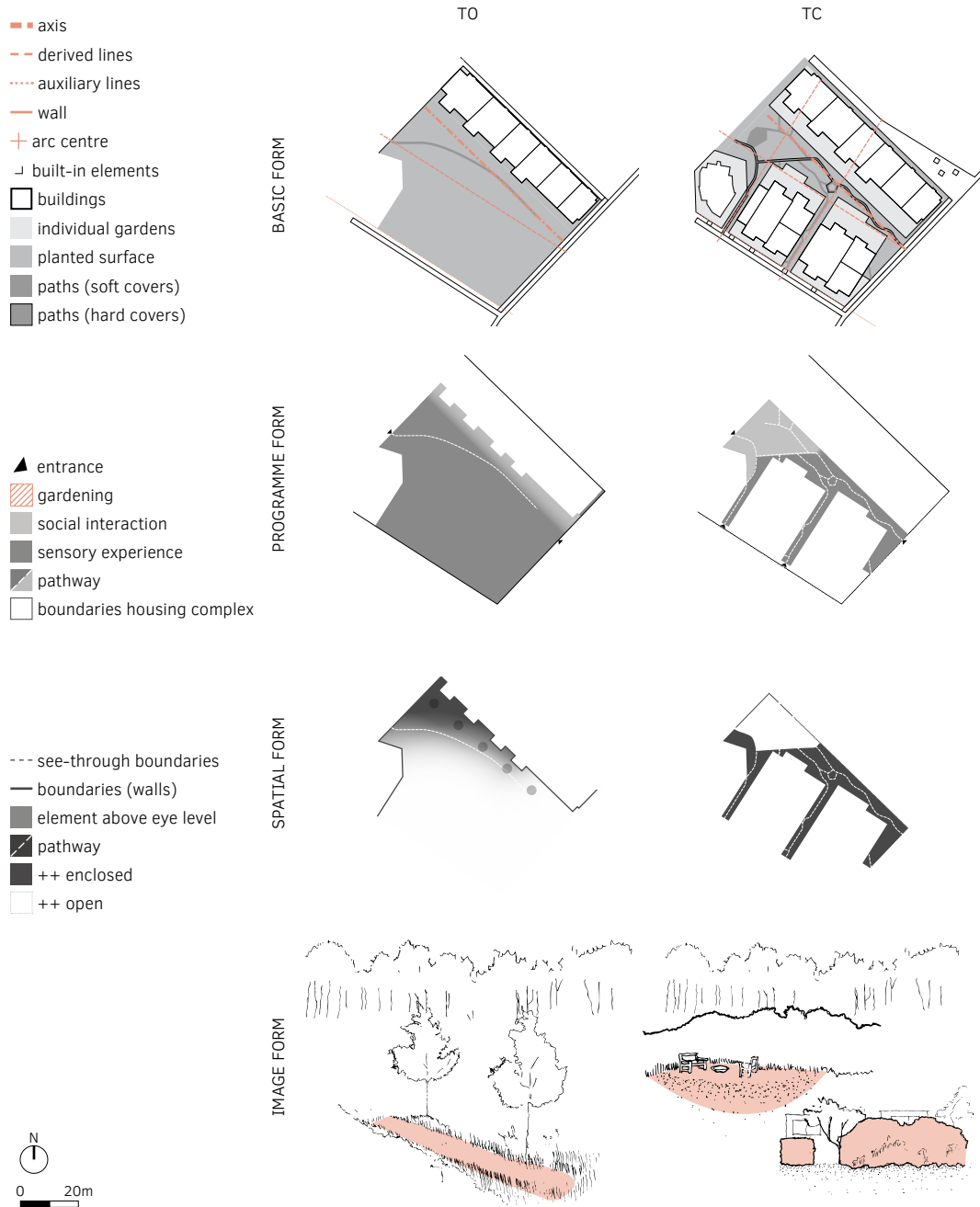


FIG. 3.28 Kassenhof: compositional forms over time.

Compositional forms

Kassenhof shows a substantial change in its basic form over time. Initially, it was structured by two main lines: one axis running parallel to the house façades and another formed by the extension of the pathway leading from the water extraction area. After the construction of the second row of houses, the garden incorporated lateral paths flanking the new homes. The intersection of these lateral lines with the original one is marked by a grassy area and a planting bed with a small tree.

Originally, the garden strip closest to the façades had a social character, which gradually transitioned into areas focused more on sensory experience. With the redesign of the garden, the social use became more strongly defined in the programme form, concentrated within the grassy area.

At present, the spatial form is clearly defined: the lawn is the most open area, while the remaining parts are more enclosed, reinforced by the architecture and the hedges that separate the private gardens from the shared space. In the past, however, the garden was largely open, with only a slight sense of enclosure created by the proximity of the architecture to the woodland of the water extraction area.

The image form once echoed the surrounding wetland through the wadi and native grasses. With the removal of the wadi, this connection has weakened, and today the image is defined mainly by the open lawn framed by hedges of varying opacity. (Figure 3.28)

Actors and interactions

Kassenhof consists of 12 owner-occupied dwellings, nine of which are still occupied by the original residents. Although limited, this turnover has contributed to the current demographic diversity, and the community includes children, adults and older residents. The architect Peter Wienberg, from the architectural practice KWSA, who designed the greenhouse homes, also continues to live on site. The courtyard also includes Het Werfhuis, which, in addition to a single-family house and an apartment, currently accommodates an anthroposophic doctor's practice. The building previously hosted a nursery and primary school known as de Werfklas, which has since relocated. Some of the former teachers still reside in the building.

Decision-making is organised through a garden committee, supported by a chairperson and a treasurer, but discussions often take the form of informal exchanges among neighbours. Workdays are organised by the committee when needed, with participation varying according to the weather and residents' availability. For heavier tasks, hiring external help has become increasingly common.

Residents describe themselves today as a coherent community, with all decisions about the garden taken collectively at the start of workdays over coffee and tea. Contributions to garden maintenance depend on actual expenses rather than fixed fees. In the past, the garden was more actively used by children, whereas today, with fewer children around, it often feels underused. Some residents prefer to keep the space open and uncluttered, while others advocate for more planting or communal furniture. Residents occasionally bring out their own furniture for gatherings and a bench originally placed near the fireplace is often moved around within the lawn.

The lawn is occasionally marked by molehills, and hedges of varying density and height define the boundaries between private and shared areas. In the corner house, an opening in the hedge allows the dog to move freely between the individual garden and the lateral pathway along the water extraction area. Such interactions between non-humans and the physical space have become part of the garden's identity, shaping both how it is perceived and how its upkeep is negotiated. (Figure 3.29)

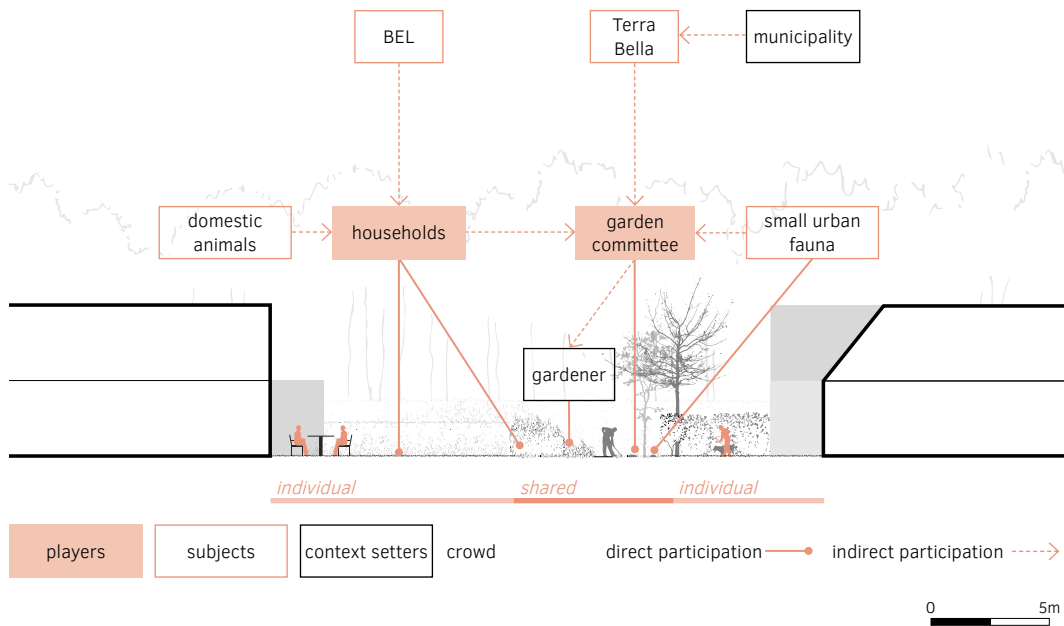


FIG. 3.29 Kassenhof: participation in garden transformation and noteworthy interactions.

3.3.2 Appelhof

Designed by Peter Pontier in 2004, the shared garden in Appelhof covers just over 1,060 m². It is organised around an amoeboid-shaped lawn at its centre, adjacent to a seating area furnished with benches and a picnic table. On the wider side of the trapezoidal plot, a playground tower is accessed via a swinging rope bridge that crosses a water garden. The opposite side of the garden is more enclosed and traversed by a winding path connecting the seating area to two entrances at either end. Narrow ditches run alongside the lawn and sections of the pathway, ensuring that the soil remains dry and limiting puddling, a feature residents take pride in, as other courtyards in Lanxmeer have reported drainage-related problems.

The garden is planted with a colourful and dynamic mix of flowers, shrubs, and trees, creating contrasts of texture and seasonal interest. Sculptures, a water pump, and a portable fireplace add to its character, while the undulating pathway and varied planting reinforce the distinction between the open central space and the more intimate edges. (Figure 3.30)



FIG. 3.30 Appelhof: bird's-eye view (extracted from Rozendaal, 2025) and impression of the garden.

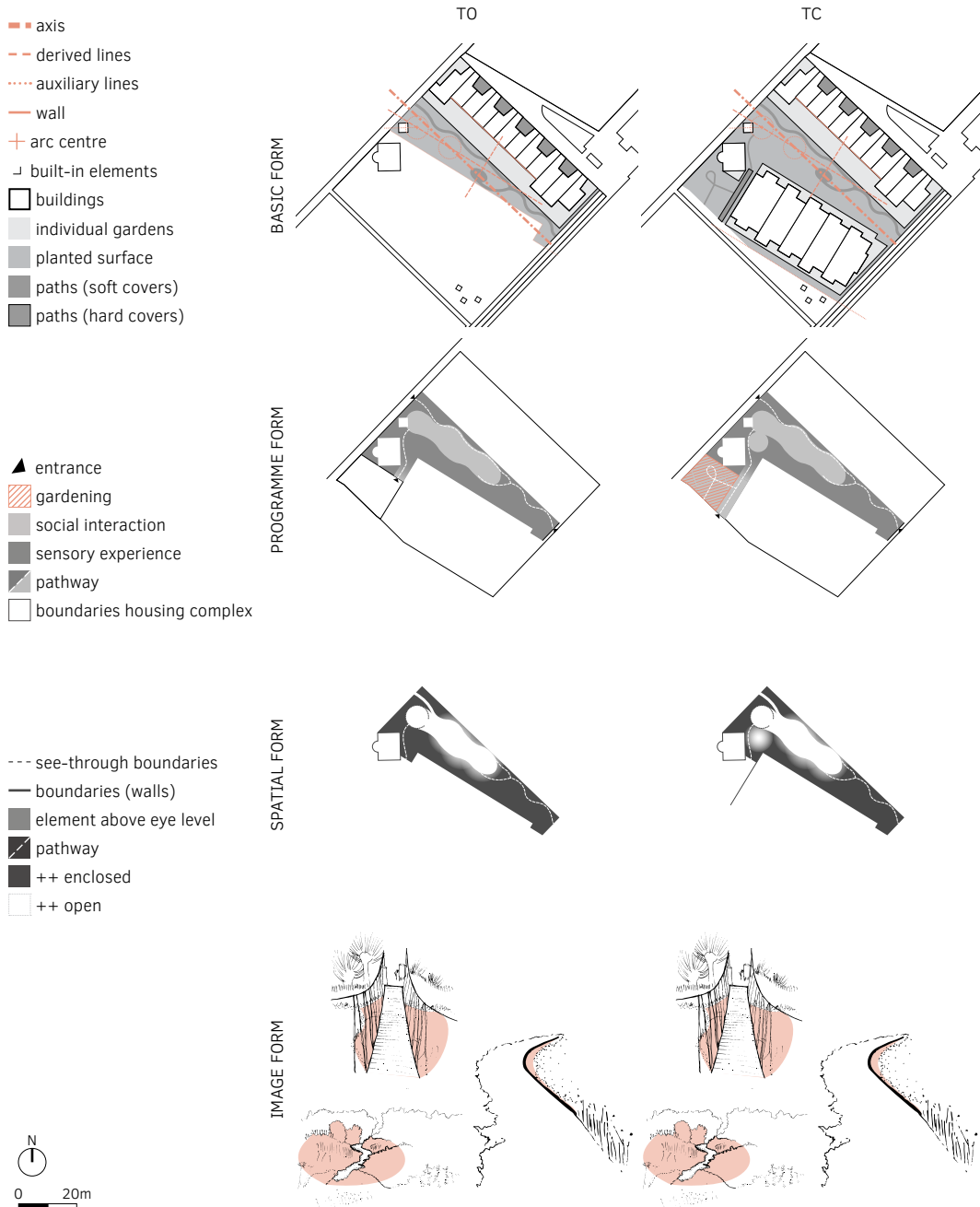


FIG. 3.31 Appelhof: compositional forms over time.

Compositional forms

In Appelhof, TO refers to the original design project completed in 2004, while TC denotes the situation as observed in 2023. In both instances, many elements and spaces are arranged along a longitudinal axis running parallel to the façades, with the communal seating area located at its centre. This basic spatial structure was retained even after the construction of a second row of housing some years later.

The more internal part of the garden provides spaces for social interaction, while areas closer to the façades focus on sensory experience. Although this underlying logic has remained unchanged over time, the garden has expanded in its social character. A seating area around a portable fireplace was added next to the playground, and the area in front of the single-family house (the Tempelmanwoning) was transformed into a type of neighbourhood allotment garden.

The elongated lawn forms the open part of the garden, in contrast to the more enclosed surrounding areas, including the south-eastern access to the garden with its undulating pathway. In TC, a small additional open space is visible, corresponding to the later-added seating area.

The garden displays a rich visual layering through diverse planting, including colourful and fruit-bearing species, as well as a wet garden planted with willows along the wadi bordering the playground. Water is also present in the ditch running along the edges of the lawn. Variations in colour and texture, together with the presence of water, as reflected in the planting, shape the image of the garden. (Figure 3.31)

Actors and interactions

Appelhof comprises 19 privately owned homes, some of which are subsidised. Over time, there have been only three turnovers among the greenhouse dwellings. The community previously included households with a wide range of age and gender profiles; today, however, there are fewer children and women form a clear majority, as most male residents have moved out. There is no formal committee: residents organise gardening collectively, with maintenance coordinated through shared workdays, and participation is generally high. More demanding tasks are occasionally outsourced.

Workdays not only serve to maintain the garden but also to strengthen social ties. Each one concludes with shared drinks, turning routine tasks into moments of conviviality. Since the COVID-19 pandemic, residents have also established a new tradition: what began as collective jogging sessions has gradually evolved

into coffee meetings every Friday morning. Residents also highlight the culture of solidarity: when the former inhabitant of the Tempelmanwoning became seriously ill, neighbours collectively took turns to care for him, reinforcing the sense of mutual support within the court.

Interactions extend beyond Appelhof's own residents. Children from neighbouring courts often come to play in the distinctive playground tower, and visitors sometimes collect fruit from the garden's trees. These interactions, however, have also raised concerns: after an accident involving an outside child, residents installed a sign clarifying that they cannot take responsibility for such incidents.

The abundance of flowers and fruit attracts many insects, while birdhouses installed by residents encourage birds to nest. The willows in the wet garden require frequent cutting to keep their growth under control, making them a regular focus of maintenance. (Figure 3.32)

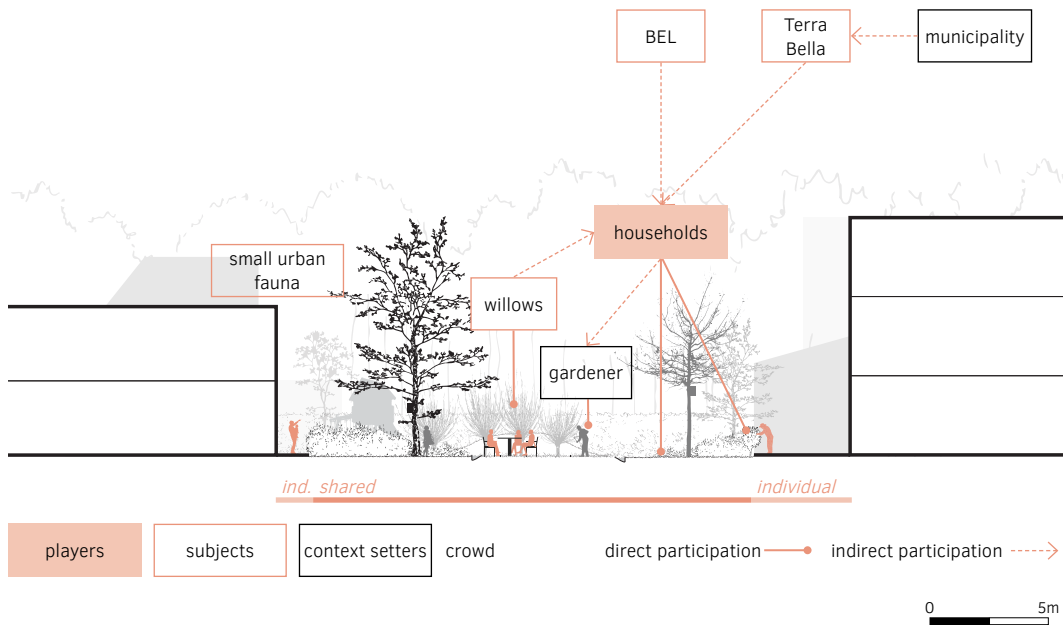


FIG. 3.32 Appelhof: participation in garden transformation and noteworthy interactions.

3.3.3 Watertorenhof

Watertorenhof was designed in 2004 by the residents, including a landscape architect. Covering approximately 965 m², the shared garden is set on a wedge-shaped plot, with its wider end opening onto a grassy field with scattered trees. The narrower end accommodates a vegetable garden and a playground situated on a small hill. The playground includes a hut made of branches and a slide, recalling the climbing tree that once occupied the site.

An S-shaped path of beach shells links the entrance on the street side to another leading to the water extraction area. At its midpoint lies a circular seating area framed by bent-wood structures, with tables and a fixed pizza oven. Individual plots are clearly demarcated from the shared areas by hedgerows and small mounds. Other distinctive features include a handmade totem near the entrance, a sandpit, a trampoline, and a water pump connected to an underground channel. In the past, the pump could feed into one of the backyards, creating a mud garden for young children, but this system is no longer in use. (Figure 3.33)



FIG. 3.33 Watertorenhof: bird's-eye view (extracted from Rozendaal, 2025) and an impression of the garden (BEL, n.d.)

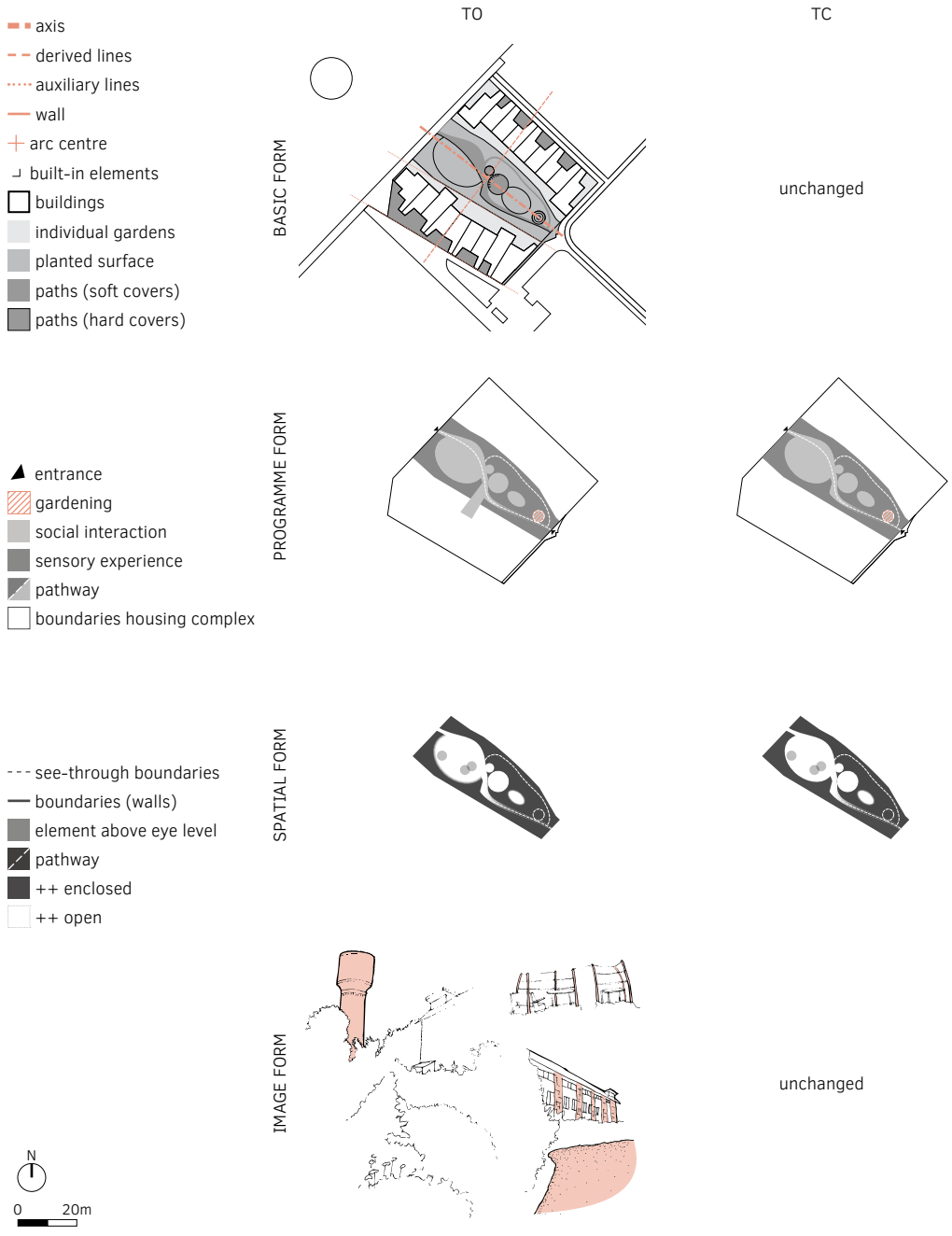


FIG. 3.34 Watertorenhof: compositional forms over time.

Compositional forms

In Watertorenhof, TO corresponds to the garden as realised in 2004, while TC refers to the situation as observed in 2023. In both cases, the garden is organised around a strong longitudinal axis along which spaces and elements are arranged. Midway along this axis, a gathering space framed by a bent-wood structure marks a focal point, coinciding with a bend in the building footprint.

Spaces for social interaction, including the lawn, water pump, seating area, playground and vegetable garden, are aligned along the axis and surrounded by areas that intensify sensory experience. In TO, the social area extended into an individual garden, which took the form of a mud garden and was open to all children in the community. In TC, this function has been lost following a significant reduction in the number of young children living in the courtyard.

The spatial structure shows a deliberate balance between open and enclosed areas, a logic that has persisted despite later spatial changes. For example, soft mounds were replaced by hedgerows. The lawn defines the more open side of the garden, while the enclosed side contains the vegetable garden and is bordered by a pathway.

The image of the garden is strongly shaped by architectural references. The nearby water tower is visually integrated into the garden and becomes part of its identity. Pathways surfaced with crushed seashells echo the materiality of the building façades, while changes to play elements over time have altered the garden's image. Finally, the bent-wood structure enclosing the seating area conveys both intimacy and a sense of collectivity through its circular form. (Figure 3.34)

Actors and interactions

Watertorenhof comprises 18 dwellings, 12 owner-occupied and six rented, all with direct access to the shared garden via their backyards. Each household contributes €30 a year, adjusted when needed. In the past, a working group organised monthly meetings and produced annual gardening booklets; today, there are no regular meetings, and maintenance is organised through routine gardening days, with dates set only approximately in advance. Participation is high, and turnover is low.

Alongside maintenance, the garden has long served as a setting for conviviality. Workdays begin with coffee and end with shared food or drinks, and residents also gather for high tea, soup around the campfire, or pizza from the communal oven. A large summer festival is held each year, with workshops, games, and music

performed by a courtyard ensemble. However, the community has faced challenges, including three deaths in quick succession, two by suicide, and the departure of a creative resident who had long played a leading role, which reduced the festive communal atmosphere.

As children have grown older, they make less frequent use of the shared space, altering the character of the garden. Vegetation took over the mud garden in one private backyard once it fell out of use. A trampoline and play hut on a mound were removed at a resident's request, and a boat-shaped sandpit and climbing tree were taken away after they deteriorated. With the later arrival of a family with younger children, a plastic slide was installed on the former site of the climbing tree, and a new sandpit and trampoline were introduced. The placement of the trampoline required negotiation, as residents with older children raised concerns about noise.

The community has also shown engagement beyond the courtyard. When a large building was planned on the adjacent plot, which would have blocked views of the historic water tower from which Watertorenhof takes its name, residents organised to influence the developers, successfully changing both the location and design of the building. Later, after public benches in the neighbourhood were removed following complaints about teenagers from local schools, a resident living along the street installed a bench himself and took responsibility for monitoring its use; following his death, the bench was later removed. (Figure 3.35)

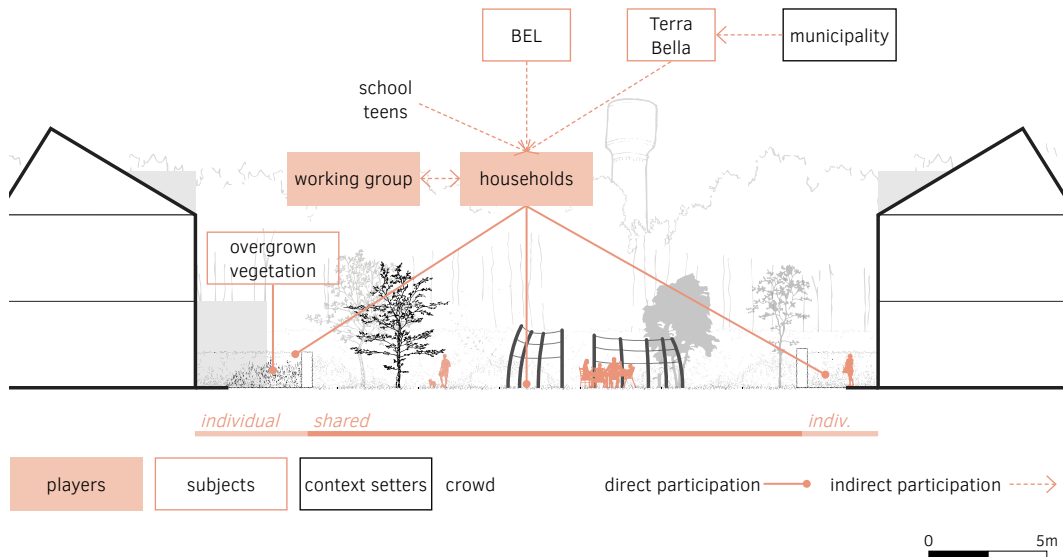


FIG. 3.35 Watertorenhof: participation in garden transformation and noteworthy interactions.

3.3.4 Waterhof

Waterhof was realised by the residents in 2005. The shared garden covers approximately 645 m² and has a spear-shaped layout oriented towards the water. A ditch separates the private gardens from the communal space, with small wooden bridges providing safe crossings. The main access to the shared garden runs from the lateral street, while a woodchip path begins at the pavement, passes between two willows, and continues alongside the ditch. Three narrow gaps between the houses serve as secondary entrances.

The shared garden was originally laid out as a grassy field with an open view of the water, interrupted only by reeds and willows thriving in the wet soil. A single walnut tree was planted beside a multi-stemmed tree, around which residents built a tree house from second-hand materials. Nearby, a sandpit and water pump completed the play area. A pier constructed from a salvaged bridge provides access to the pond, while a built-in outdoor sofa set between two willows faces the water, with herbs planted on a mound directly behind it. Additional features such as football goals, uneven pull-up bars, and a trampoline reinforce the garden's improvised character. (Figure 3.36)



FIG. 3.36 Waterhof: top view (extracted from Rozendaal, 2025) and an impression of the garden.

- axis
- - - derived lines
- ⋯ auxiliary lines
- wall
- + arc centre
- └ built-in elements
- buildings
- ▒ individual gardens
- ▓ planted surface
- ▒ paths (soft covers)
- ▓ paths (hard covers)

- ▲ entrance
- ▨ gardening
- ▒ social interaction
- ▓ sensory experience
- ▒ pathway
- boundaries housing complex

- - - see-through boundaries
- boundaries (walls)
- ▒ element above eye level
- ▓ pathway
- ▓ ++ enclosed
- ++ open

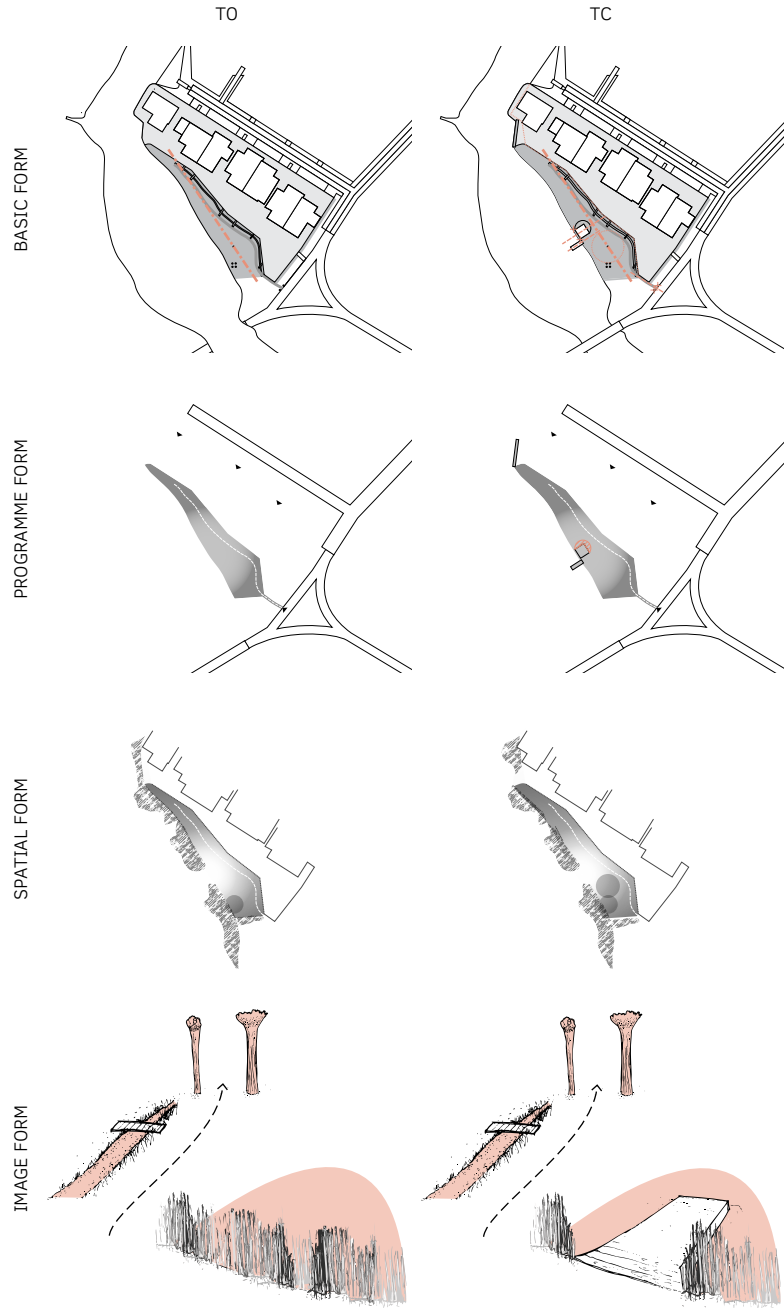


FIG. 3.37 Waterhof: compositional forms over time.

Compositional forms

In Waterhof, TO corresponds to the garden as first laid out by the residents in 2005, while TC refers to the situation as observed in 2024. The garden is organised along a longitudinal axis, with the seating area and pier grouped at its midpoint. A pair of willows already marked this location, anchoring the composition. The main entrance aligns with another pair of willows near the street, underscoring the role of existing vegetation in shaping the garden's basic form.

The central part of the garden is oriented towards social interaction and includes an open lawn. Over time, additional objects and structures have been introduced, reinforcing this social character, including a tree house and sandpit, a seating area, an herb garden, and the pier, which strengthens the connection between the garden and the water. Towards either end, the garden provides more sensory-oriented spaces.

The garden opens broadly towards the water, although the steady growth of reeds has gradually enclosed this edge, acting as a low and shifting boundary. In the more open section, a walnut tree now structures the space while introducing a subtle sense of enclosure behind it. Together, the two pairs of willows frame both the entrance and the view towards the water.

The image of the garden draws strongly on the surrounding wet landscape. Beyond the reeds and willows that naturally thrive in this setting, the ditch further reinforces this watery character. This image has remained consistent from the original layout through to the current configuration. (Figure 3.37)

Actors and interactions

Waterhof consists of eight owner-occupied houses, five of which are still occupied by the original residents. Following the turnovers, two households now include children, while most of the original children have already left home. In the early years, residents documented meetings and management practices in detail; over time, formal procedures were abandoned and most matters are now handled informally, often via messaging apps. Collective workdays take place around three times a year, sometimes preceded by a preparatory meeting at a resident's home, and plans often change on the day itself, reflecting a preference for spontaneity. Costs are covered by a small monthly contribution, supplemented when necessary. Residents also maintain a small area across the street, in front of the private property Foreseewoning, and often refer to the two gardens as forming a single courtyard.

Part of the garden extends into public land created after the water level of the pond was lowered by 30 cm to prevent flooding of crawl spaces. Residents use and maintain this claimed ground under an agreement with Terra Bella, keeping reed growth under control and balancing privacy with visual access to the water. As the land is not privately owned, only temporary elements are placed there, reinforcing the garden's provisional character.

Many features have been improvised from second-hand materials, including a tree house, a pier built from a salvaged bridge, and a sailboat converted into a sandbox, later removed as the wood decayed and children grew up. It was replaced by a wood-fired hot tub hidden in the reeds, popular for birthday parties but eventually dismantled when it broke down. In winter, the frozen pond becomes a festive skating space for the wider neighbourhood, with music, lights, hot drinks, and snacks, while in summer the pier attracts visitors for swimming. Occasional noise and litter issues are usually resolved through direct contact with users.

For many residents, the garden functions as an extension of the home and a playground for children, reflected in the variety of play equipment across the courtyard. The tree house has been adapted over time to suit children's changing age and height. Other residents value the garden's ecological qualities and have added dead hedges to support small fauna. Non-human actors also shape the space: reeds and willows thrive in the wet soil and require frequent trimming, while attempts to introduce other species often fail due to waterlogged conditions. (Figure 3.38)

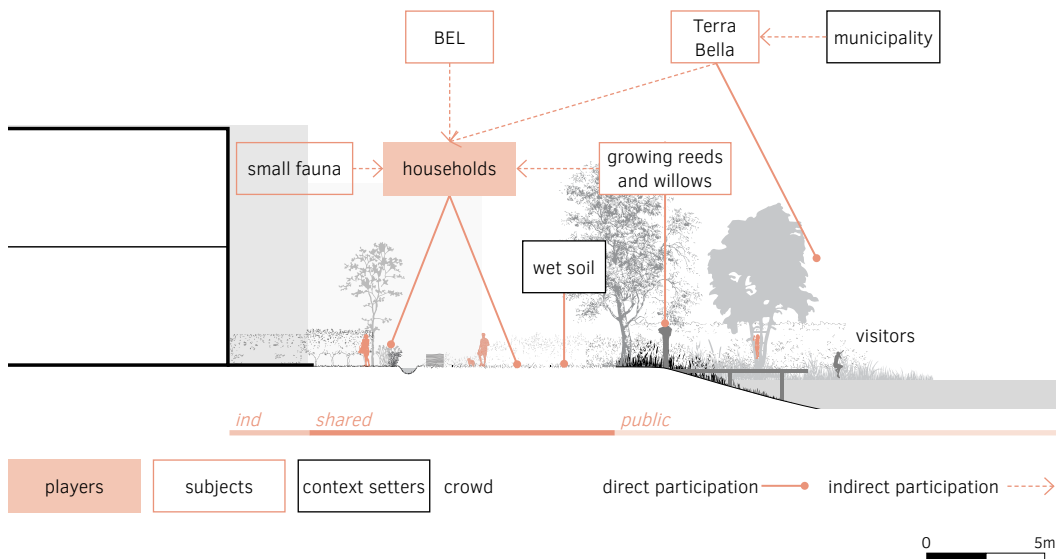


FIG. 3.38 Waterhof: participation in garden transformation and noteworthy interactions.

3.3.5 Achterberghof

Achterberghof was realised by the residents in 2008. It is one of the smallest shared gardens in Lanxmeer, with an area of only 222 m². The garden serves four privately owned houses and is only slightly larger than the residents' individual backyards. Two homes are separated from the shared garden by a small parking area with three bays, while the others have direct or visual access to the garden through doors or windows.

The layout is modest. Initially, the garden consisted of a grassy field with a picnic table, enclosed by hedges that screened it from the street and adjacent parking areas. Later, residents enhanced the space by planting apple and pear trees, adding a small mound and a pond that provides habitat for amphibians, and installing a built-in bench alongside the pond. (Figure 3.39)



FIG. 3.39 Achterberghof: bird's-eye view (Adapted from Komen, 2016) and an impression of the garden.

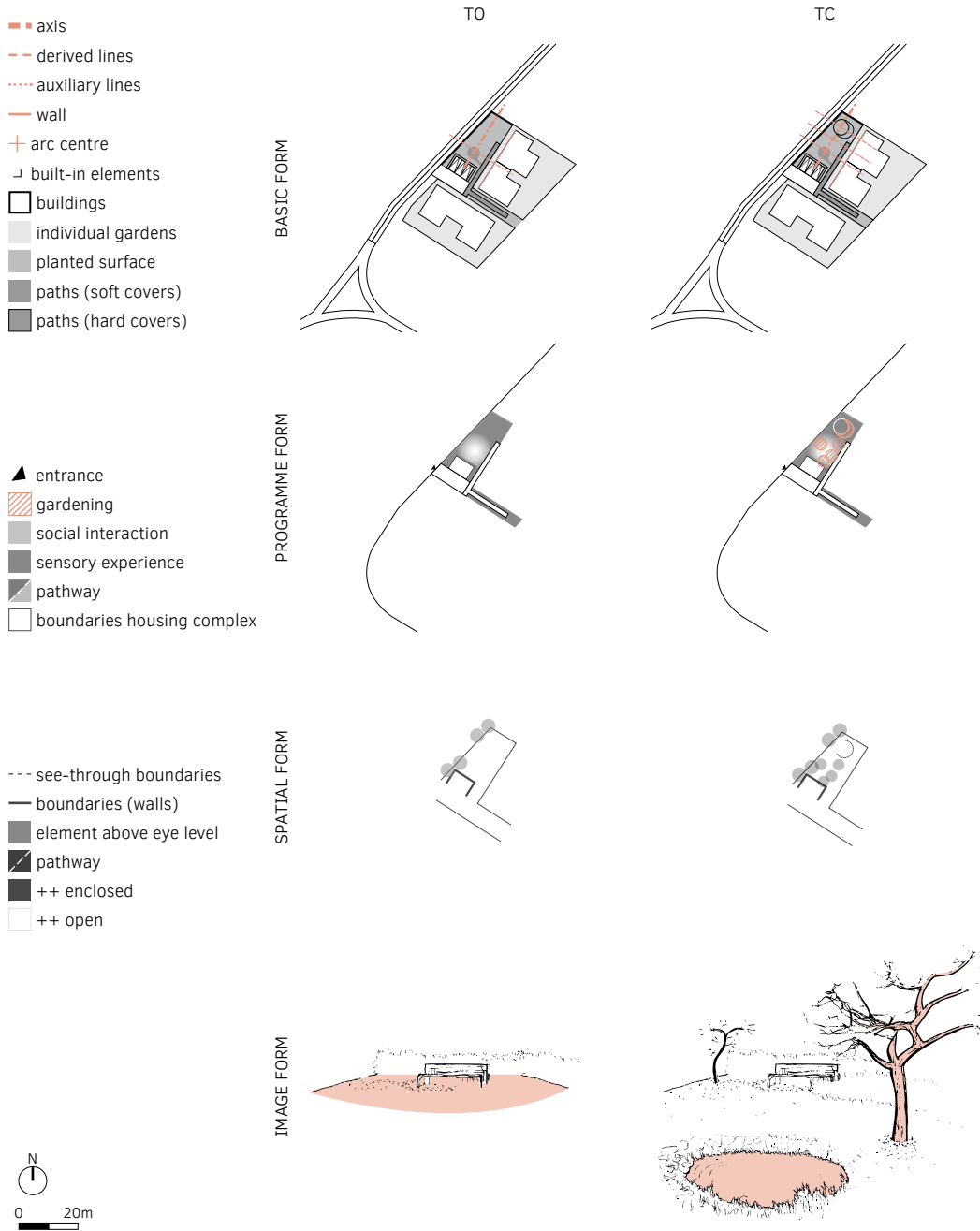


FIG. 3.40 Achterberghof: compositional forms over time.

Compositional forms

For Achterberghof, TO refers to the garden as initially realised by the residents, while TC denotes the situation in 2024. A longitudinal axis structures the garden, with the lawn at the centre. This axis informs the placement of the picnic table on one side and, later, the pond on the other, creating a sense of symmetry.

The lawn and its adjacent seating area provide space for social interaction, while the rest of the garden fosters sensory experience. In TC, apples and pears are harvested every summer, and the trees themselves function as small gardening spots. In addition, the small mound in the north-east corner is planted with edible herbs.

Compact and enclosed by façades and hedges, the garden reads as a single open space, altered over time only by the addition of small trees.

Originally a monochrome space made up of a lawn framed by hedges, the garden has developed a more layered image: the fruit trees lend it a nursery-like quality, while the pond contributes a wilder, swamp-like character. (Figure 3.40)

Actors and interactions

Achterberghof is home to four households, half of which are still occupied by the original residents. Given the small size of the group, decisions are taken informally through direct conversations among neighbours. Garden work is carried out collectively, and the modest scale of the space makes coordination relatively straightforward. No financial contributions are required, and upkeep is managed entirely by the residents themselves using their own gardening tools.

Social life centres on the picnic table and the seasonal harvesting of apples and pears. Encounters, however, are not very frequent, partly due to the garden's limited size and location. While other children have grown up and moved away, only one household currently includes a child, who finds sufficient space to play in the private garden.

Given the limited visual access to the shared garden, a resident once proposed removing the parking spaces or covering them with a pergola for climbing plants. The idea did not gain support, as the parking bays, originally intended for visitors, are now used daily by residents.

Despite the garden's limited size, residents' actions positively affect the neighbourhood. One household with a strong interest in gardening also maintains the public vegetated strip adjacent to its façade garden under an agreement with Terra Bella.

Another resident, active in the 'Saving Amphibians' working group, contributed to the installation of perforated manhole covers throughout the neighbourhood to protect these animals. The same household proposed the creation of the small pond in Achterberghof and continues to maintain it. In winter, a plastic chair is sometimes placed in the pond to facilitate breaking the ice, supporting amphibian habitat conditions. The fruit trees provide food for wildlife, mowing is delayed in winter, and moss spreads across the lawn. (Figure 3.41)

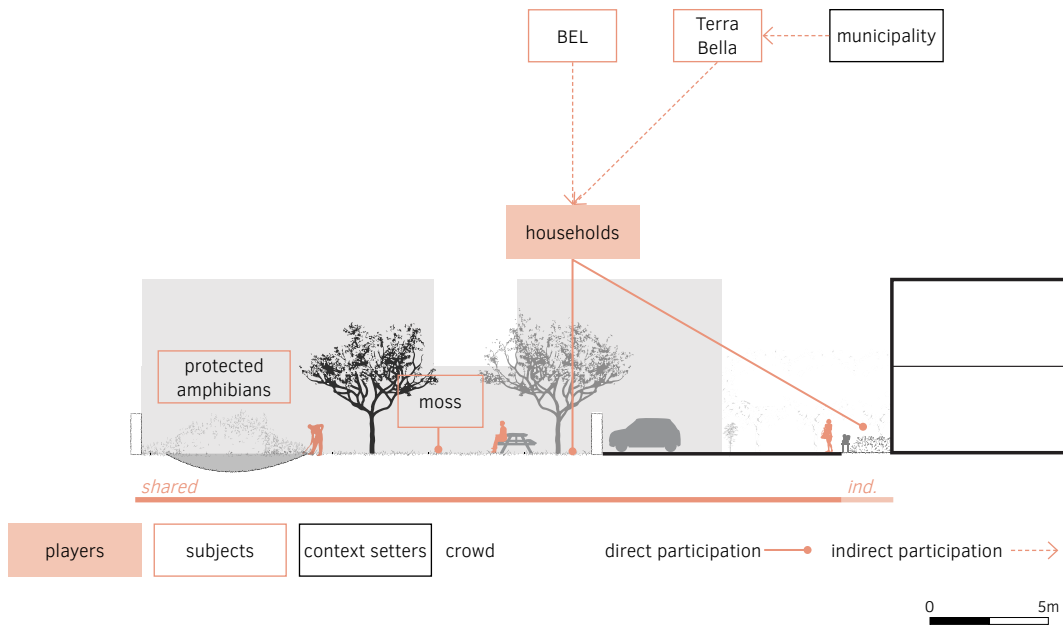


FIG. 3.41 Achterberghof: participation in garden transformation and noteworthy interactions.

3.3.6 De Trein

Realised in 2012, the garden at De Trein was designed by the residents with the assistance of a gardener. The shared area, covering just over 1,980 m², is structured into two distinct zones. On one side lies a large open lawn with scattered planting beds and playground equipment, including a climbing hill with a den and a slide. On the opposite side, a more enclosed zone contains shrubs and an arbour with seating near one of the entrances.

A meandering woodchip path runs alongside the building, linking the front and rear pedestrian entrances through the enclosed section. Individual ground-floor gardens are located at the back of the building and remain physically and visually separated from the shared space. A separate vegetable and herb garden is situated to the side of the complex, and a bicycle rack is located adjacent to the lawn. In addition to the pedestrian entrances, the shared garden is also easily accessed from the southern drop-off area. (Figure 3.42)



FIG. 3.42 De Trein: bird's-eye view (extracted from Rozendaal, 2025) and an impression of the garden (photograph provided by Minke Wijkmans)

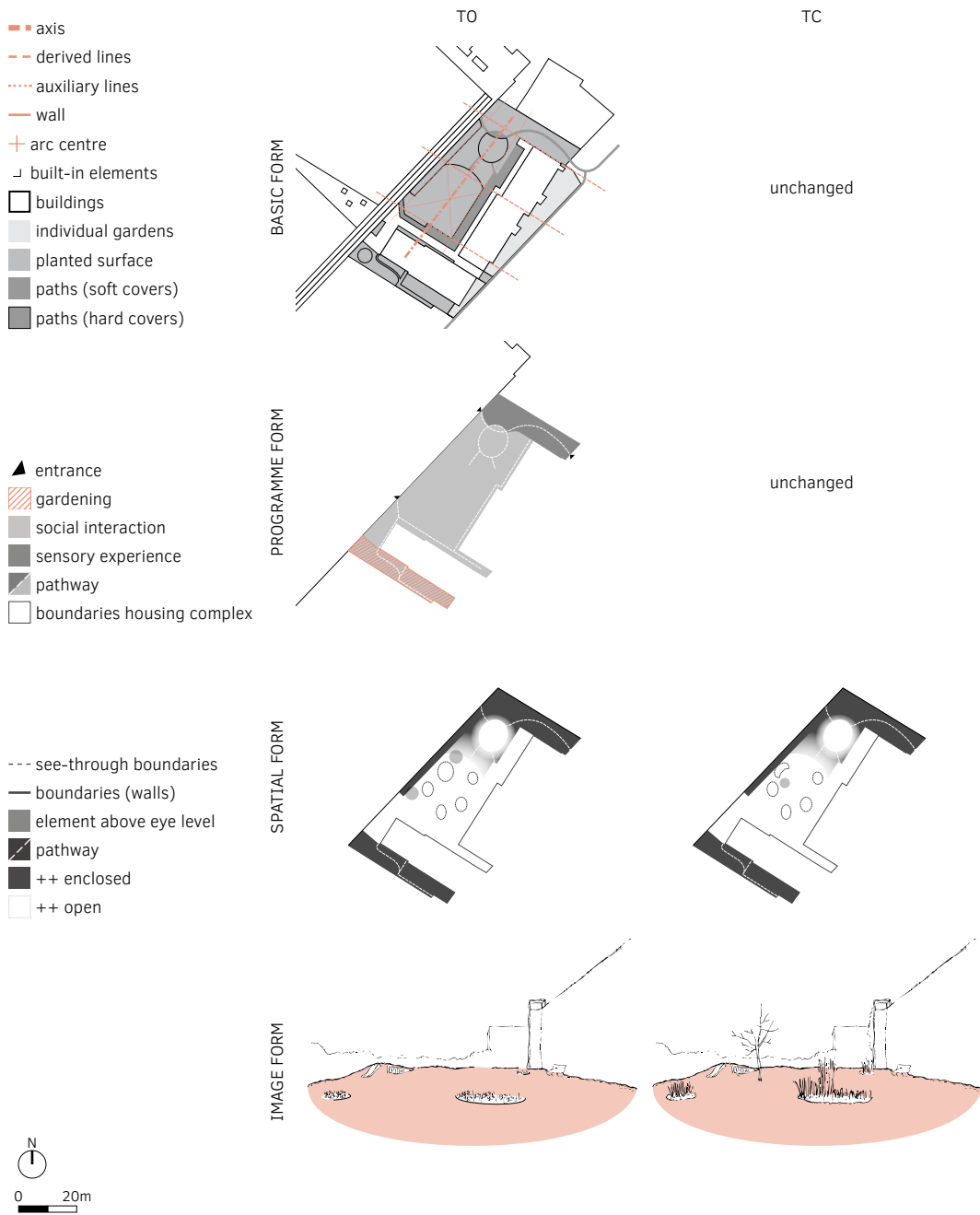


FIG. 3.43 De Trein: compositional forms over time.

Compositional forms

In De Trein, TO corresponds to the design developed in 2012, while TC refers to the situation as observed in 2024. In both instances, the basic form is defined by two main spaces of unequal size arranged along a longitudinal axis, with a transitional zone in between.

Both spaces are oriented towards social interaction: a large open lawn provides room for play, while a smaller, more sheltered area offers seating. Gardening activities are concentrated along the southern strip, while the northern strip contributes a different sensory quality.

The northern and southern strips form the more enclosed parts of the garden, where vegetation and adjacent façades reinforce a sense of enclosure. By contrast, the central area remains open and is dominated by the expansive lawn.

This openness, together with the prominence of grass, largely defines the garden's image form. (Figure 3.43)

Actors and interactions

De Trein has 27 dwellings, eight owner-occupied and 19 rented dwellings. Residents range from young families to retirees, with turnover highest among the rentals. The shared garden forms part of the homeowners' association (VvE), and each household contributes €10 a month. Administration of the funds and larger management decisions are handled by a small group of homeowners and tenants appointed by the housing corporation, while all residents are invited to take part in garden upkeep. In practice, participation varies, with only a few active in communal life.

Maintenance is organised through several garden days each year, depending on the availability of residents, with a core group playing a central role. Lawns are mown in rotation, while some residents tend the flowerbeds, borders, and vegetable garden. Given the garden's size and limited workforce, landscaping companies are frequently brought in to carry out maintenance and gardening tasks. Garden days sometimes function as social occasions, followed by shared lunches or drinks using produce from the communal plots. In summer, surplus vegetables are left near the mailboxes for anyone to take.

Communication runs through a private Facebook group and email, while neighbourly help is exchanged informally. The garden also serves as a setting for social events such as birthdays and the communal Christmas tree. With a secondary school next door, students

sometimes cut through the space, leaving litter or causing noise. To address this, signs were installed clarifying that the garden is private property, and BEL holds regular talks with students to raise awareness about private areas across the neighbourhood.

Plant growth contributes to the gradual differentiation of spaces, reinforcing contrasts between open and enclosed areas without altering the overall spatial structure. (Figure 3.44)

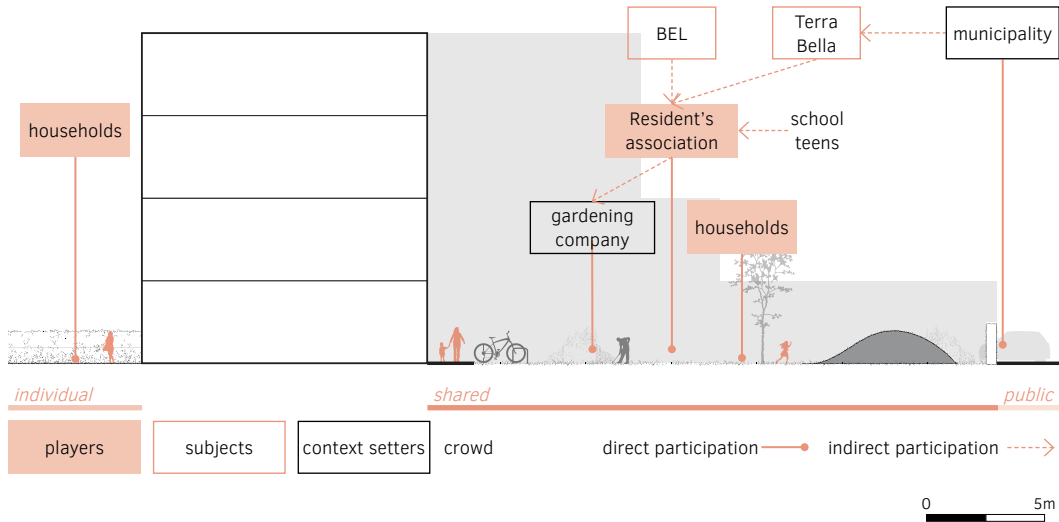


FIG. 3.44 De Trein: participation in garden transformation and noteworthy interactions.

3.4 West garden complex

The western complex comprises three shared gardens: Wilgenhoven, Paul Rodenkohof, and Quartethof. As elsewhere in Lanxmeer, the polder pattern influenced the alignment of streets and access routes. An existing row of alder trees was preserved, and together with the requirement for internal service streets, this produced a more segmented urban form.

In the southern part of the site, Wilgenhoven was designed by the architectural office opMAAT. It comprises an apartment block and three rows of houses, all accessed via internal streets, with private gardens located to the rear. Initially, the communal area had no defined shared garden, consisting only of façade gardens and a small planting bed. At the request of future residents, the municipality agreed to redistribute parking spaces along the adjacent street, allowing the planned parking area to be converted into a shared space. The garden was subsequently realised by the residents using municipally subsidised equipment.

Paul Rodenkohof was arranged around a central space resembling a traditional *hofje*. Designed by Hyco Verhaagen, the garden was tailored to the needs of its future residents — primarily elderly people with dementia and young adults requiring social support. It was conceived as a low-maintenance environment, with safety as a guiding principle.

Further north, the Quartethof housing project was developed in two phases. When the first phase was completed in 2016, residents chose to postpone the garden design until all houses were finished, allowing future neighbours to take part; in the meantime, the space was already in active use. Once everyone had settled, the garden designer Marjolein van den Bosch was hired to translate residents' wishes into a plan. (Figure 3.25)

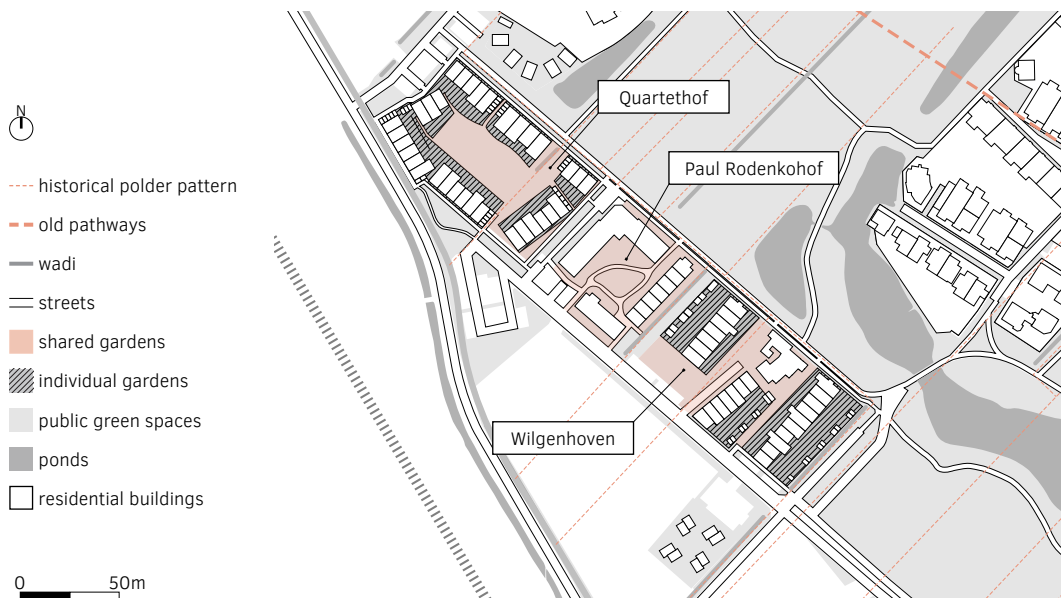


FIG. 3.45 West garden complex: context, overall urban form, and the names and locations of shared gardens.

3.4.1 Wilgenhoven

The rectangular shared garden, covering approximately 460 m², began to be realised by the residents in 2006. It comprises two connected spaces, each organised around a lawn enclosed by hedgerows, shrubs, and small trees. These spaces accommodate play and sports equipment, a picnic table, a water pump with an associated mud garden, and a chicken coop. Access is provided through wooden gates leading from the internal service street on one side and from the pedestrian path along the preserved alder row on the other.

Other communal areas within the courtyard include alleys and façade gardens, complemented by a circular planting bed, all of which were incorporated into the original architectural design. (Figure 3.46)



FIG. 3.46 Wilgenhoven: bird's-eye view (adapted from Komen, 2016) and an impression of the garden.



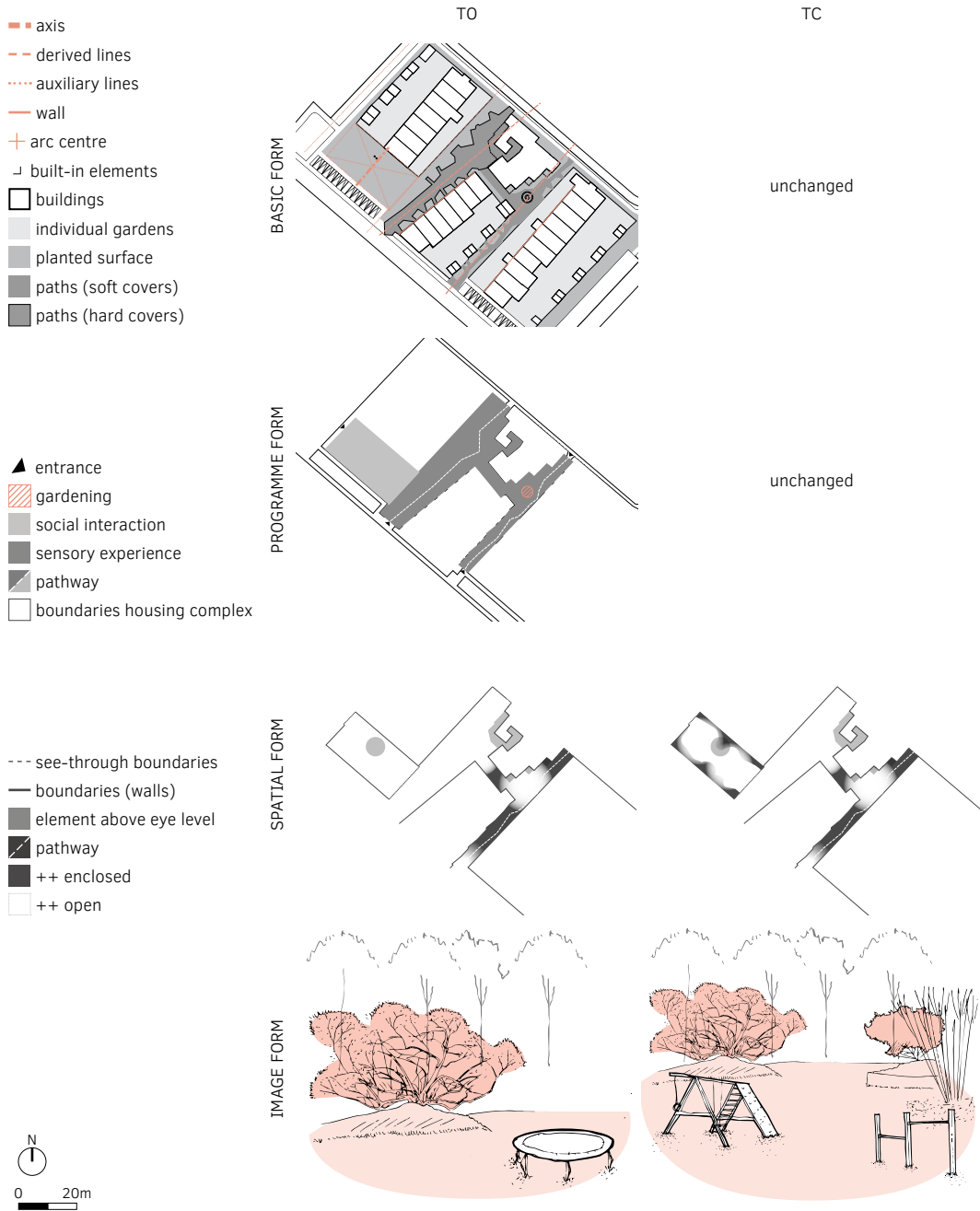


FIG. 3.47 Wilgenhoven: compositional forms over time.

Compositional forms

In Wilgenhoven, TO refers to the initial version of the garden following completion of the housing project in 2006, while TC denotes the situation as observed in 2024. The basic form follows a linear logic, with spatial axes running parallel to the façades. These axes define both the internal routes and the placement of the planting bed. Within the rectangular shared garden, the space is subdivided into two smaller rectangles, a division informed from the outset by an existing tree.

The rectangular garden functions as the primary space for social interaction and accommodates several play and sports elements, as well as a picnic table. Initially, however, the lawn contained only a trampoline. Other parts of the complex are oriented more towards sensory experience, with gardening activities concentrated in the planting bed and the façade gardens.

The easternmost alley feels more enclosed than other parts of the courtyard, due to its narrow width and the close proximity of façades and hedges separating it from the individual gardens. Over time, the lateral rectangular garden has undergone subtle spatial changes, mainly through planting along the edges and vegetation growth, which have reinforced its division into two distinct spaces.

The garden evokes an image that is less manicured and closer to the surrounding polder landscape, characterised by less frequent pruning and the presence of native vegetation. This includes alders and willows, the latter added more recently along the perimeter of the housing project. (Figure 3.47)

Actors and interactions

Wilgenhoven comprises 38 owner-occupied dwellings: 24 single-family homes and 14 apartments, with turnover higher in the latter. Compared with other courtyards in Lanxmeer, residents here were attracted less by the communal aspect, yet the courtyard still has an active group ensuring collective management. Wilgenhoven holds three annual garden days, often ending with shared drinks. A garden group organises these events, and a professional gardener supervises the work. While not all residents participate, a core group carries the upkeep and contributes to a lively atmosphere. Some residents also take responsibility for specific areas, notably the façade gardens, which they maintain individually.

Discussions around liability and safety occasionally arise, particularly regarding responsibility for incidents in the communal grounds. Students from the neighbouring school sometimes cut through the courtyard, prompting the installation of signs clarifying that it is private property.

Non-human actors also play a role in everyday interactions. The chickens kept in the coop attract children, encouraging informal social encounters and introducing routines of care and responsibility. Plant growth contributes to reinforcing the spatial structure of the garden, strengthening the distinction between spaces over time. Vegetation has also informed design decisions: an existing tree has shaped the division of the rectangular garden into two areas since the outset, while willows were planted along the perimeter as a reference to the name of the courtyard (Figure 3.48)

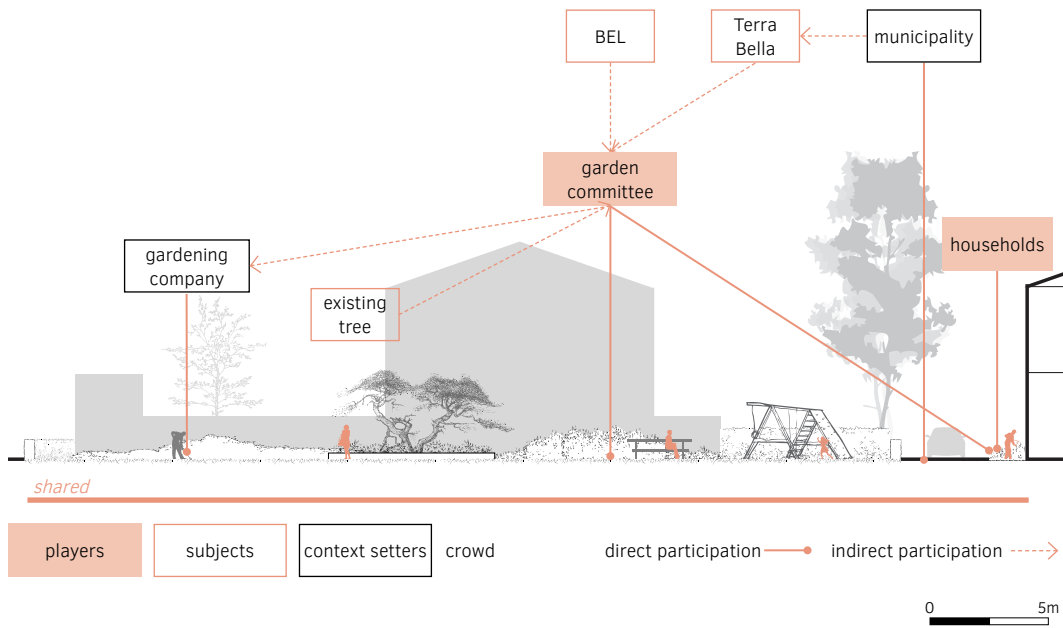


FIG. 3.48 Wilgenhoven: participation in garden transformation and noteworthy interactions.

3.4.2 Paul Rodenkohof

Paul Rodenkohof was designed by Hyco Verhaagen and realised in 2008. The shared space, covering approximately 960 m², is framed by three residential blocks. The garden is organised around a large liver-shaped planting bed containing shrubs, flowering plants, and a small number of trees. Over time, additional elements were introduced. A grassy surface accommodates a picnic table and a water pump, while a willow gazebo occupies the centre, from which a flower-picking garden radiates. Entrances to the single-family houses open directly onto the shared garden, with private gardens located to the rear, facing the wadi and a row of alder trees. The garden is also accessible from the service street, from the bicycle path on the opposite side, and through secondary connections from the care complex and the assisted living building. (Figure 3.49)



FIG. 3.49 Paul Rodenkohof: bird's-eye view (extracted from Rozendaal, 2025) and an impression of the garden.

- axis
- - - derived lines
- ⋯ auxiliary lines
- wall
- + arc centre
- └ built-in elements
- buildings
- ▒ individual gardens
- ▓ planted surface
- ▒ paths (soft covers)
- ▓ paths (hard covers)

- ▲ entrance
- ▨ gardening
- ▒ social interaction
- ▓ sensory experience
- ▒ pathway
- boundaries housing complex

- - - see-through boundaries
- boundaries (walls)
- ▒ element above eye level
- ▓ pathway
- ▓ ++ enclosed
- ++ open

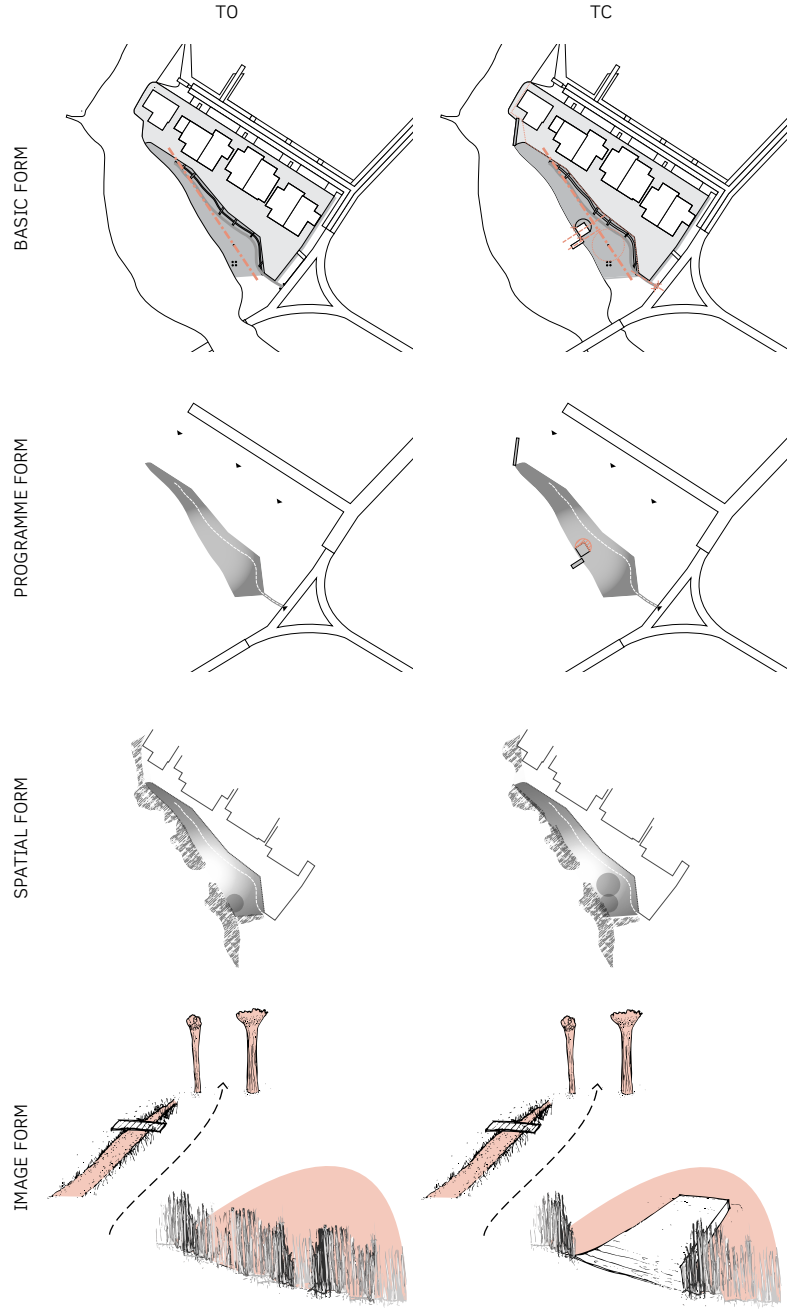


FIG. 3.50 Paul Rodenkohof: compositional forms over time.

Compositional forms

In Paul Rodenkohof, TO refers to the original design from 2008, while TC refers to the situation in 2024. In both instances, the curved forms are derived from circular geometries aligned along an axis informed by the building layout.

The garden was initially conceived to provide a sensory experience for the residents; however, it has come to be used as a space for social interaction. The large planting bed was gradually adapted to support these activities, with the addition of a picnic table and a seating area beneath a small gazebo. Gardening practices were also introduced in the flower-picking section of the garden.

The central area consists of an open space punctuated by small trees. By contrast, the fenced section within the care complex is more enclosed, due to its denser planting and the proximity of the L-shaped façade. In the central area, the most notable change over time has been the installation of the willow gazebo. Behind the row of houses, a historic line of alder trees provides a strong linear structure along the pathway.

The image of the garden initially resembled that of a public square, characterised by paved paths and fixed vegetation. Over time, the addition of flowers, objects and decorative elements has reinforced its communal, residential, and horticultural character. (Figure 3.50)

Actors and interactions

The residents of Paul Rodenkohof form a mixed community, bringing together older people with dementia, young people with disabilities, and households living in seven single-family houses. The corner houses are owner-occupied, while the remaining five are rented, and there has been no turnover among these households.

Although they are eventual users of the garden, residents of the assisted and collective living groups, as well as their caretakers, do not take part in garden management and have limited involvement in gardening activities. Maintenance of the fenced garden is outsourced by the care organisation to a gardener.

Terra Bella was initially responsible for maintaining the central shared garden, which consisted of paved surfaces and fixed planting intended to minimise upkeep. Over time, however, residents of the single-family houses requested greater freedom to shape this space themselves. They negotiated to take over responsibility for the

internal garden area, introducing a flower-picking garden and constructing a willow gazebo with guidance from Terra Bella. As a result, residents of the single-family houses now take primary responsibility for the central shared garden and for their individual front gardens, and each household contributes a modest monthly amount to cover collective costs. Terra Bella remains responsible for the planted areas surrounding the housing complex and continues to be called upon when heavier tasks are required.

Participation is limited but steady. One of the homeowners often tends the garden on Sunday mornings, inviting others to join, and gardening is valued as a way to remain active, even when residents can only undertake small tasks at a time. A picnic table and seating area provide opportunities for informal social contact, while shared maintenance practices support cooperation among households. Residents also coordinate with Terra Bella regarding the pruning of plants along the shared line of alder trees. Plant growth and seasonal rhythms influence maintenance routines. (Figure 3.51)

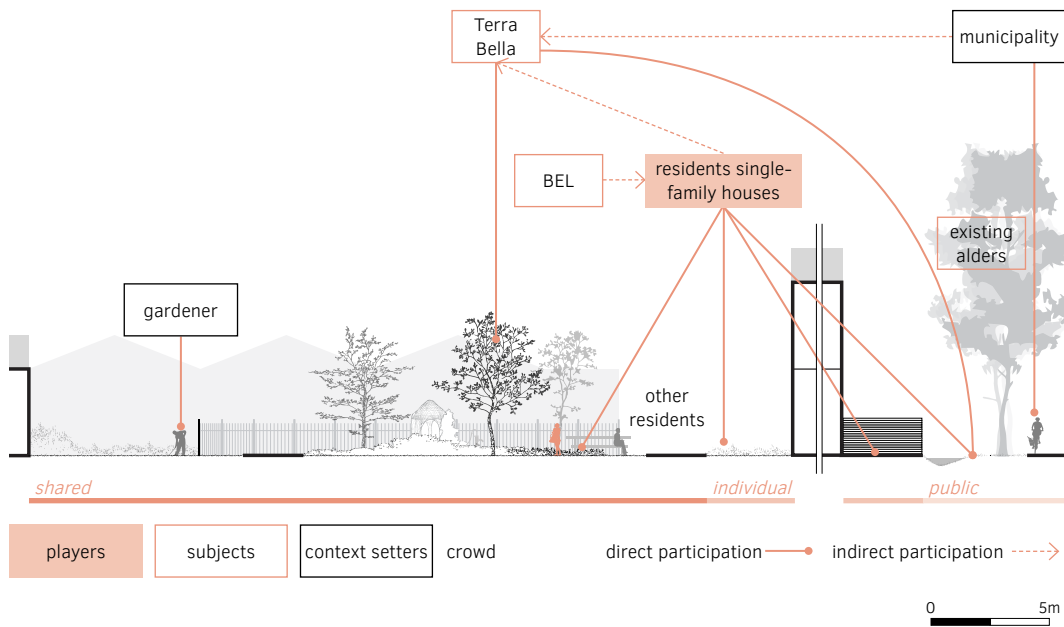


FIG. 3.51 Paul Rodenkofof: participation in garden transformation and noteworthy interactions.

3.4.3 Quartethof

Covering approximately 1,830 m², the Quartethof serves 33 houses with outward-facing entrances and inward-facing private gardens opening directly onto the communal inner garden. It was designed in 2021 by garden designer Marjolein van den Bosch, commissioned by the residents once all households had settled. When the second phase of housing was still under construction, the space had already been in use by the first group of residents since 2016, and included play elements, a communal table, and a vegetable garden.

Today, the inner garden is structured around a central area traversed by an undulating pathway connecting four entrances between the housing blocks. At the south-eastern access point, an open 'creek' runs through the courtyard. Along its route, the pathway rises over two artificial hills built from broken pieces of former concrete slabs, one accommodating a playground with a water pump and mud garden and the other a slide. Additional elements include a vegetable plot, a sand boat, and a wide lawn with a triangular wooden table. Collective planting blends almost seamlessly with the private gardens, while a ditch in one section marks the boundary between shared and private spaces and channels rainwater. Planted strips along the outer edges extend the communal surface, linking the courtyard to surrounding paths and adjacent public space. (Figure 3.52)



FIG. 3.52 Quartethof: bird's-eye views then (top, adapted from Komen, 2016) and now (bottom, extracted from Rozendaal, 2025), together with an impression of the garden.



FIG. 3.53 Quartethof: compositional forms over time.

Compositional forms

In Quartethof, TO corresponds to the provisional use of the space in 2016, while TC refers to the garden as realised in 2021. In TO, components were arranged along an axis running parallel to the building façades. In TC, this longitudinal axis shifts to the centre of the courtyard. Along this central axis, and at its intersections with two transversal routes aligned with the access paths, spaces and elements are articulated.

Originally, the garden was used informally for social interaction, including a small area dedicated to gardening. In its current configuration, the design places greater emphasis on sensory experience in the southern and outer sections, while assigning more specific functions to the social spaces within the inner garden, such as the playground and seating areas.

The garden currently reads as widely open, as vegetation is still young and has yet to define more enclosed spaces. At this stage, its spatial structure is shaped primarily by the surrounding façades, the pre-existing tree line at the south-eastern entrance, and the artificial hills. During the early years, this openness was even more pronounced, accentuated by the absence of half of the housing blocks.

The image of the garden has evolved from a temporary and informal character during the construction phase to one that still retains traces of this condition. The hills, formed from repurposed concrete slabs, reinforce a ruderal aesthetic, while the wadi and a nearby tree trunk establish a dialogue with the surrounding landscape. (Figure 3.53)

Actors and interactions

Among the 33 households are both original families and newcomers, and the garden is managed collectively through an active committee administering each household's monthly contribution of €5. Garden days, held nine to ten times a year, combine work and socialising, with adults sharing gardening tasks while children play, followed by coffee and cakes.

Seasonal traces of activity, such as children's toys and mole mounds, provide clues to the garden's constant use. A communal table donated by residents of Lodewijk van Deysselhof reflects neighbourhood-wide support and the circulation of materials. Proximity to the railway station means that outsiders occasionally cut through the garden, prompting residents to reinforce the northern entrances with fences.

Governance has been contested. The community initially adopted a decision-making model based on sociocratic principles, in which decisions are taken by consent, later shifting to majority voting and then to an 80 per cent approval rule when decisions proved difficult to reach. While intended to strengthen legitimacy, the higher threshold has slowed decision-making, leaving some proposals unresolved, including the reintroduction of a trampoline. Disputes have also centred on collectively owned planted strips and crossing pathways, which some residents regard as shared spaces while others claim the right to modify them due to their proximity to their homes. Over time, gravel and woodchip paths were replaced with individually styled paving, resulting in a fragmented appearance. At one corner house, an additional strip alongside the window was paved to facilitate access and maintenance, despite differing interpretations of the collective decision, leading to ongoing tension.

Attempts by BEL and Terra Bella to mediate these conflicts had limited effect, as their authority does not extend to the level of individual courtyards. A proposal to reorganise public and collective strips was later rejected by the municipality on safety grounds. Residents offer different explanations for the tensions: some second-phase households felt that the first group, already cohesive, was less receptive to their input; others point to the absence of a strong governance framework from the outset; while some argue that the garden is simply too large to be effectively managed by amount of households. (Figure 3.54)

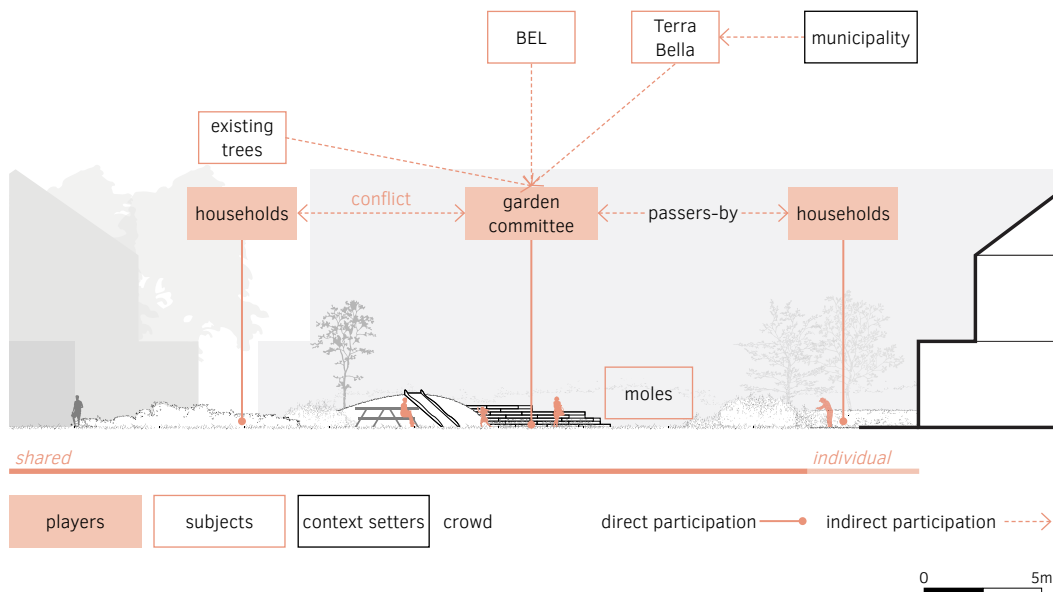


FIG. 3.54 Quartethof: participation in garden transformation and noteworthy interactions.

3.5 Changes over the years

This section provides an overview of the physical and spatial changes observed in Lanxmeer's shared gardens, drawing on content analysis. These changes were identified by comparing the current condition (TC) with the original design (TO) and any intermediate configurations. The analysis is structured around six dimensions: **where** change occurred, **when** it took place, **who** was involved, **why** it happened, **how** it unfolded, and **what** compositional layers were affected. Together, these dimensions offer a comprehensive understanding of how Lanxmeer's shared gardens have evolved over time.

3.5.1 Changes (where)

Changes were reported in all shared gardens. These were categorised according to their content into the following groups:

- a) Planting: growth, decay, additions, removals, replacements, relocations, or reshaping of vegetation, including trees, shrubs, flowers, edibles, and grasses.
- b) Objects: addition, removal, replacement, relocation, alteration, wear, breakage, and decay of furniture, structures, decorations, and tools.
- c) Playgrounds and sports installations: additions, expansions, removals, reductions, replacements, wear, breakage, and decay affecting objects and spaces intended for play, recreation, or exercise.
- d) Boundaries: introduction, enhancement, removal, or lowering of boundary elements between shared gardens and adjacent private or public spaces, such as hedges, fences, gates, ditches, wadis, transition zones, or restrictive signage.
- e) Animal support: additions, expansions, removals, or reductions of elements intentionally introduced by human actors to house domestic animals or support small wildlife, including shelters, habitats, and feeding provisions.
- f) Grounds and surfaces: modification of paving, ground covers, pathways, or terrain, including additions, removals, alterations, or reshaping.

- g) Use and affordances: changes in the use or perceived potential of space, including the expansion, reduction, or redefinition of shared garden areas, or the addition of housing or individual gardens adjacent to shared spaces.

A Planting

Plant growth and decay are integral to gardens. In addition, changes to planting were the most frequently reported human-led modifications in Lanxmeer, reflecting the central role of planting maintenance in everyday gardening practices. The additions or removals most commonly mentioned and observed involved trees, likely due to their strong visual presence and memorability. Such changes are more easily identifiable in photographs and satellite imagery, and residents are more likely to recall them, as decisions concerning trees often require broader consultation and the involvement of multiple actors.

Additions of trees were most frequently recorded during the first five years following a garden's implementation, and again 16 years later or more. In Het Kwartel, trees were added within the first five years to improve views from residents' windows. In Nesciohof, by contrast, residents removed or replaced overgrown trees 16 years after the garden's establishment, as these had gradually reduced sunlight in the shared space. In Waterhof, a single walnut tree was planted during the early years to give structure to the open space — though it initially struggled due to the site's wet soil — while naturally occurring willows and reeds are pruned seasonally to prevent them from overtaking the garden. (Figure 3.55)

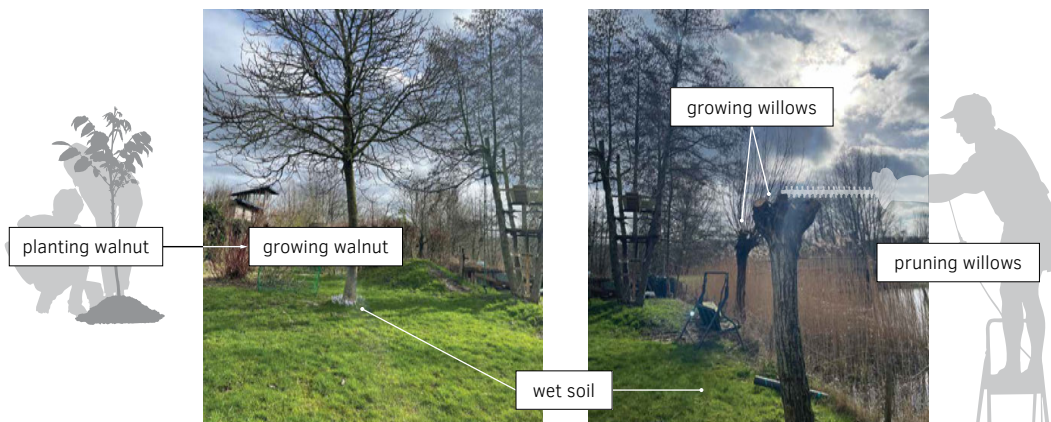


FIG. 3.55 Changes in the planting scheme in Waterhof: the addition of a walnut tree alongside the seasonal pruning of willows and reeds reveals an ongoing process of negotiation between humans and non-humans, including the site's soil conditions.

In contrast, changes involving smaller vegetation — such as shrubs, flowers, and edibles — are often overlooked in interview accounts. These modifications are typically embedded in routine garden maintenance and may seem less noteworthy to residents, even when they are ecologically or compositionally significant.

B Objects

Object-related changes were predominantly additions, particularly of furniture and small structures intended to foster leisure and social interaction. Added items include pergolas, arbours, rose arches, tables, benches, swings, self-built seating areas, piers, and water pumps. Many of these appear in multiple gardens across the neighbourhood, suggesting a degree of influence and replication among different garden communities.

Several other objects serve clear utilitarian purposes, such as bicycle racks, compost bins, fireplaces, and storage sheds. Decorative elements were also introduced, including statues, totems, and other forms of garden art. Interestingly, some objects that might appear purely ornamental were, in fact, functional deterrents — for instance, obstacles placed to discourage groups of teenagers from gathering under a building's marquee in Het Kwartel.

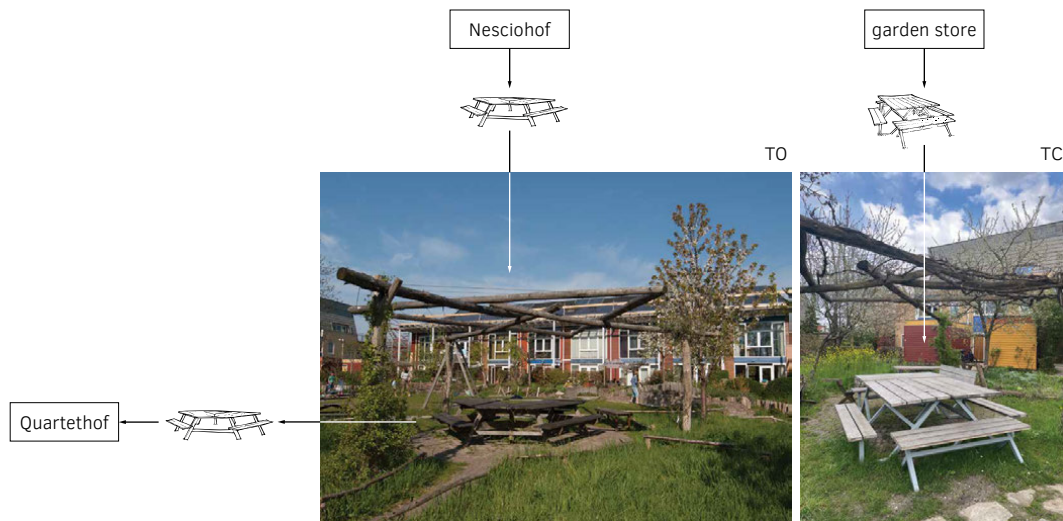


FIG. 3.56 Changing objects: a custom-made communal table replaced by a more flexible design in Nesciohof and by standard off-the-shelf tables in Lodewijk van Deysselhof. (Photograph on the left adapted from BEL, n.d.)

Further changes involved the relocation or replacement of furniture and structures, often prompted by deterioration through weathering or breakage. In many cases, new structures closely resembled the originals but were simpler, more affordable, or more practical. This was the case of the handmade triangular communal tables replaced by simplified versions, as seen in Nesciohof and Lodewijk van Deyssehof. (Figure 3.56)

C Playgrounds and sports installations

Among the various object-related changes, those concerning playgrounds and sports facilities stand out for their frequency and significance. Various types of sports equipment were added to support leisure activities and foster social interaction. Examples include football goals, pull-up bars, a volleyball net, and a pétanque court in the public space. These additions reflect an effort to diversify outdoor use beyond child-focused play areas.

Playgrounds were added, expanded, reduced, removed, or replaced. Reductions and removals were most often linked to three factors: children ageing out of playground use, equipment deterioration due to breakage or rotting, and noise-related nuisances; particularly from trampolines. Such changes were more likely to occur 11 years or more after the original garden design was implemented.

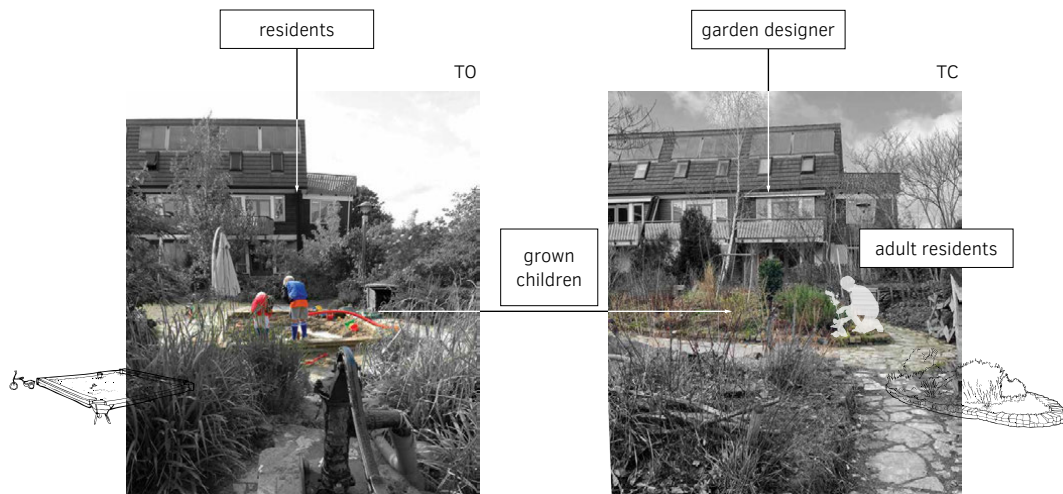


FIG. 3.57 Changing playgrounds: a sandpit replaced by a planting bed in Nesciohof. (Photograph on the left adapted from BEL, n.d.)

In some cases, removed playgrounds were not replaced with new equipment but instead adapted for uses better suited to adult residents. For instance, sandpits were replaced by a planting bed in Nesciohof (Figure 3.57) and an outdoor hot tub in Waterhof. In another case, a mud garden in Watertorenhof fell into disuse and was eventually overtaken by vegetation.

Additions to playgrounds typically occurred through small, incremental interventions, most often within the first ten years after garden implementation. However, new additions were also observed more than 16 years later, usually following earlier removals and coinciding with the arrival of new families with young children through household turnover. In Waterhof, successive additions to the treehouse structure over the years are clearly visible.

D **Boundaries**

Most boundary-related changes concerned the addition or increase in height of hedges, fences, and, in some cases, small gates between shared and individual areas. These interventions were typically introduced incrementally over the years. Motivations for such changes varied and included the desire for clearer spatial delimitation, improved containment (e.g., of children or domestic animals), enhanced privacy, and aesthetic preferences.



FIG. 3.58 Changing boundaries in Kassenhof: variations in hedging between shared and private gardens, including a gap allowing dog access to the adjacent pathway.

There were also instances in which boundary elements were reduced or removed. In Nesciohof, for example, a household lowered its hedge to increase sunlight and open up views to the shared space. In Kassenhof, a small gap was intentionally made in the hedge to allow a dog easier access to the side pathway for walks. (Figure 3.58)

Changes to boundaries also included the installation of signage. In some courtyards, signs were placed to indicate the private ownership of shared gardens, in response to disturbances caused by teenagers from nearby schools.

E Animal support

Support for animals includes food provision, nesting places, and shelters. Animal shelters were introduced in six of the shared gardens, some of them built for domestic animals collectively cared for by residents. Chickens are the most common community animals, as many residents believe that raising them helps children develop values such as responsibility and care for living beings. In Nesciohof, the chicken coop was eventually removed once the children grew older and the animals died. Many years later, a new resident proposed reintroducing it; however, due to concerns about noise and the smaller number of children in the community, the coop was instead installed in their private garden.

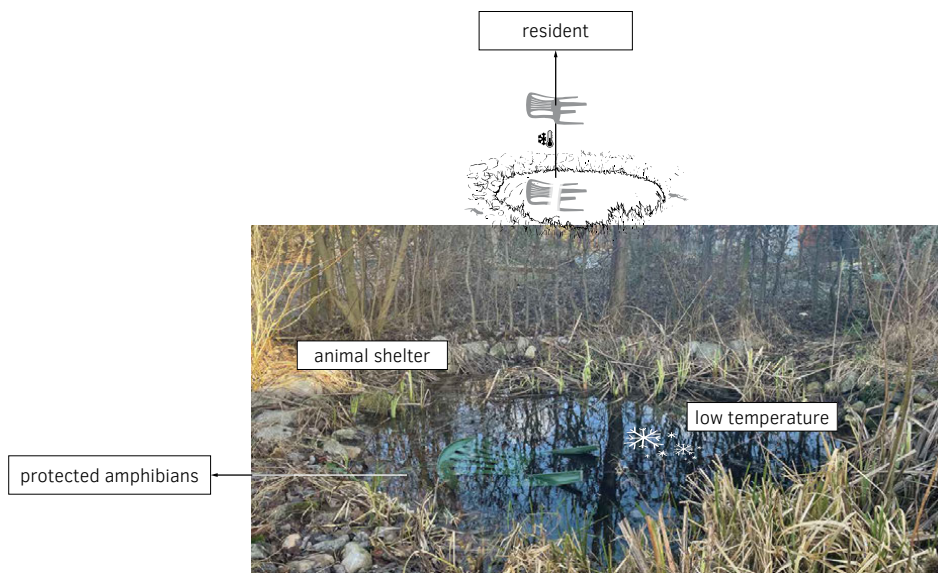


FIG. 3.59 Changes in animal shelters in Achterberghof: a small pond created to support amphibian life. A plastic chair is used to break the ice during winter.

Support was also provided for small wildlife, reflecting broader ecological concerns among residents. Measures included birdhouses, dead hedges, and the planting of flowering and fruit-bearing species. In Achterberghof, residents constructed a small pond specifically to support amphibian life. Across the neighbourhood, rainwater wells were fitted with perforated lids to prevent amphibians from falling into drains. Animal shelters were also created beyond the shared gardens, including a stork nest installed in the orchard area and equipped with a live-streaming camera that activates when a pair settles in. This initiative illustrates the community's interest in fostering connections with local wildlife. (Figure 3.59)

F Ground and surfaces

Changes to ground surfaces and paving were observed in several gardens. In Het Kwarteel, a paved area with outdoor seating is currently under construction to accommodate social activities without compromising the large lawn, where the placement of personal furniture is prohibited. In the outer collectively owned surfaces of Quartethof, tiles were laid on the pathways leading to house entrances following safety concerns raised by residents. Additionally, one household paved a shared strip alongside its façade to facilitate window cleaning. (Figure 3.60)

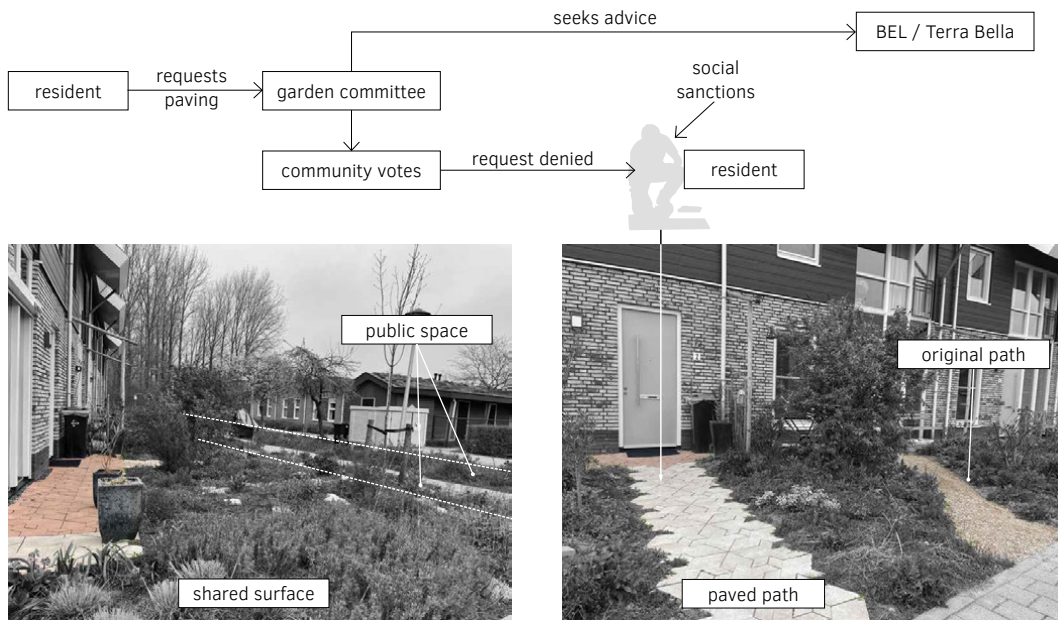


FIG. 3.60 Changes to ground and surfaces in Quartethof: newly paved paths on outer collectively owned surfaces, introduced for safety and convenience

In other cases, ground covers were replaced. In Nesciohof, residents found that the seating area became uncomfortably hot in summer due to the thermal properties of the lava stone. It was eventually replaced with lawn, although this introduced a new issue: rainwater now takes longer to percolate, as the original porous surface had allowed faster drainage.

Other modifications involved reshaping the terrain, altering the geometry of pathways, or changing groundcovers. One example occurred at the neighbourhood's largest water pond, where the water level was lowered by 30 cm after flooding was reported in the crawl spaces of nearby homes. As a result, a strip of ground adjacent to the shared garden in Waterhof became exposed and was later appropriated by residents.

G Use and affordances

In some cases, elements acquired new or unexpected affordances. In Vasalishof, for example, children use the undulating brick wall and pathways as informal play structures, demonstrating how design features can invite unintended yet meaningful forms of use.

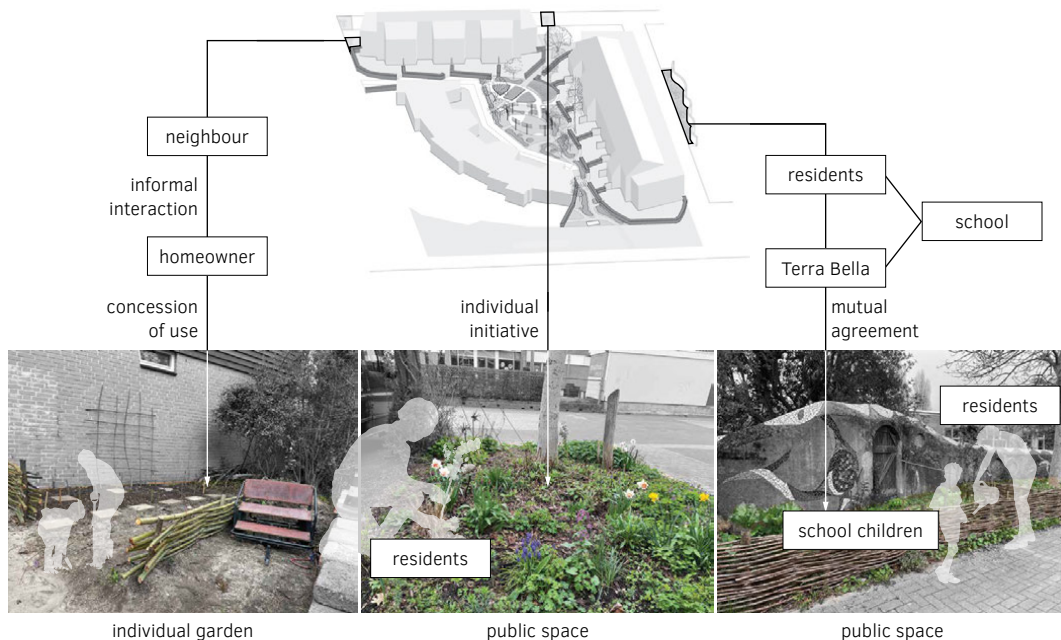


FIG. 3.61 Changes in use and affordances in Nesciohof: new gardening initiatives in and around the courtyard.

Change was also prompted by shifts in use. In Nesciohof, residents initiated a collaboration with the nearby school and Terra Bella to create a vegetable and herb garden along the school property. This space now fosters regular engagement between residents and schoolchildren, strengthening connections within the neighbourhood. One resident offered part of their private garden for a collective project with children, while others planted flowers in tree beds in public areas. (Figure 3.61)

Certain features simply became obsolete. For instance, underused sandpits and fireplaces were sometimes covered with tarps or wooden lids, while trampoline mats and springs were removed in response to noise complaints. Other elements ceased to serve their intended purpose due to damage, such as broken gates or a torn volleyball net.

3.5.2 **Change timeframe (when)**

Changes in Lanxmeer's shared gardens were most frequently observed during two key periods: within the first five years after garden implementation and again after approximately 15 years, reflecting distinct stages in the social, material, and ecological lifecycles of shared gardens. (Figure 3.62)

The first five years can be seen as a phase of spatial and social adjustment, when new residents — often families with young children seeking a community-oriented lifestyle — arrive with energy and enthusiasm and engage actively in shaping the garden environment. This period coincides with the establishment of most planting schemes: just as shrubs need three to five years to develop stable root systems, communities also appear to require this time to consolidate their routines, relationships, and gardening practices.

Between years five and ten, the gardens tend to reach a state of relative stability. Residents have grown accustomed to one another, micro-cultures and informal traditions emerge, and vegetation often reaches full maturity. During this phase, the garden is no longer perceived as a novelty. While changes continue to occur, they are typically smaller in scale and tied to plant development, day-to-day maintenance or minor adjustments, unless triggered by unexpected events or external disturbances.

More significant changes re-emerge after the ten-year mark. This period represents key shifts in the lifecycle of people, plants, and materials: children become teenagers, social dynamics evolve, and many wooden objects and shrubs begin to show signs of decline. These shifts often coincide with resident turnover²; new households bring different needs and preferences, prompting further transformation.

By 15 to 20 years, a series of accumulated motivations often leads to more substantial interventions. Shrubs and structures may require replacement due to ageing or wear, while long-standing residents begin to reassess priorities as their household compositions change. Many children leave, prompting shifts in how shared spaces are used. Areas that were previously underused may gain renewed purpose. Although the number of incoming young families is considerably lower than in the initial years, the arrival of new children can still prompt adaptations in play areas and communal spaces.

Finally, several changes occurred either sporadically (e.g., seasonally) or at unspecified moments in time, which could not be precisely dated within this research.

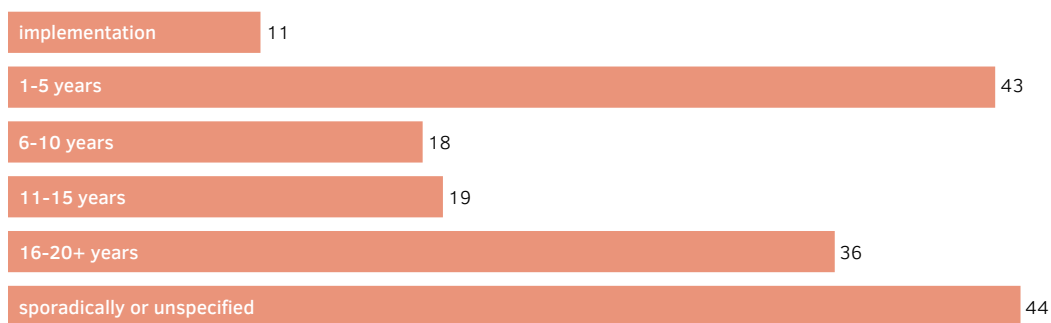


FIG. 3.62 When: overview of the timeframes in which change occurred across Lanxmeer's shared gardens, in relation to the number of reported changes, as revealed by content analysis.

² Based on 2021-2022 data from Statistics Netherlands, Dutch residents move an average of seven times over their lifetimes. On a ten-year basis, mobility rates range from 1.1 to 1.2 moves in urban areas and approximately 0.8 in rural regions. In Lanxmeer, BEL estimates that turnover among original residents becomes more frequent after about 15 years.

3.5.3 Actors involved (who)

Most changes identified in shared gardens involved human residents. Their active interest and control over resources such as property ownership gave them the strongest capacity to act. In some cases, this agency was channelled through the garden committees, but these generally served an administrative function rather than acting as true decision-making bodies.

Residents engage with their courtyards in diverse ways and assume a variety of roles. The gardener maintains vegetation and advises others on tasks; the archivist documents the garden's evolution; the caretaker provides food or drinks during gatherings; the cleaning person supports by tidying shared facilities; the handyperson assists with small repairs; the creative collaborator contributes ideas for social events; the facilitator organises gardening days and purchases materials; the gatekeeper protects the community from external disturbances; the leader represents the group; and the opponent challenges representatives by voicing alternative perspectives. These roles illustrate the heterogeneity of residents and the different degrees of agency through which they shape their gardens, whether through physical work, decision-making, or everyday use.

Motivations for living in Lanxmeer vary. Some residents were drawn by social-ecological ideals, seeking a greener and more community-oriented lifestyle. For others, the main appeal lay in having more space for their children and affordable housing within commuting distance of Utrecht. Others moved to be closer to family members.

Likewise, the composition of courtyards varies — from fully owner-occupied to mostly rental communities, and from mixed groups in age and gender to those predominantly formed by middle-aged women. Gardens older than 20 years tend to have fewer children than newer ones, and most residents have a European background (predominantly Dutch), with non-European residents mentioned in only three of the 14 gardens.

Among other human actors, BEL and Terra Bella play an influential role. BEL ensures that residents are aware of the residents' agreement and fosters contact between different courtyards, while Terra Bella oversees the interface between shared gardens and public space. Professional gardeners or gardening companies also appear as occasional helpers. Teenagers from nearby schools have influenced several changes in the courtyards, whereas children from other gardens appear less frequently and with limited impact.

Non-human actors were also frequently mentioned. Vegetation plays a central role: tree growth often prompts spatial adjustments, and regular hedge trimming is cited as demanding work. Sunlight and soil conditions, especially excessive wetness, impose non-negotiable constraints on garden layout and materiality. Small wildlife and domestic animals exert limited agency in transforming the gardens but have a noticeable influence on residents' practices. An exception is the seasonal appearance of mole mounds on lawns, which continually reshape the surface and signal the coexistence of human and non-human agents in these shared environments.

3.5.4 Motivations (why)

Changes in Lanxmeer's shared gardens were driven by a wide range of motivations, often interconnected. A recurring driver across many cases was the desire to support leisure and social interaction. This motivation was typically linked to the addition of objects, playground features, and animal shelters, often in response to everyday needs or new phases in community life, such as the arrival of children or residents' growing interest in gardening (e.g., Nesciohof).

Aesthetic preferences also played a strong role, with residents modifying planting schemes, decorative features, and boundaries to make their surroundings more attractive. These preferences often overlapped with biophysical processes, ecological concerns, and a general wish to enhance diversity and leisure.

Many changes were reactive in nature. Wear and tear prompted removals, replacements, and spatial adjustments, while unforeseen needs led to the addition of functional objects (e.g., a bicycle rack). Ecological concerns motivated the creation of wildlife shelters, the installation of compost bins, and alterations to planting schemes.

Some changes responded to external disturbances. Recurrent nuisance caused by teenagers from nearby schools led to the removal of furniture, as well as the installation of signs and physical barriers to discourage unwanted gatherings (e.g., in Het Kwartel and De Trein). These reactive measures highlight how garden management is also shaped by broader dynamics in the neighbourhood.

Demographic shifts also shaped the evolution of gardens. These often led to the removal or repurposing of spaces, such as replacing playgrounds with planting beds or hot tubs (e.g., Nesciohof and Waterhof, respectively).

A noteworthy though less frequent motivation for change was symbolism, expressed as an attachment to an image, object, or spatial feature that became emblematic for a garden community. These symbols ranged from built or natural elements to broader landscape references and even the garden's name. For instance, despite its iconic row of alders and the absence of willow trees, Wilgenhoven was named the 'Garden of Willows'. Years later, residents planted willows along the adjacent sidewalk to align with the name and reinforce the garden's symbolic identity. In Het Kwarteel, a statue made by a deceased resident was gifted to the community. Deeply valued for its sentimental significance, the statue became the subject of extended discussion regarding its placement. Following several meetings and a door-to-door survey, the community reached full consensus that the statue would face the water, just as many residents themselves enjoy doing. More broadly, references to Lanxmeer's water identity are found throughout the neighbourhood, where gardens often incorporate elements that strengthen symbolic, physical, or visual connections to surrounding water bodies. (Figure 3.63)

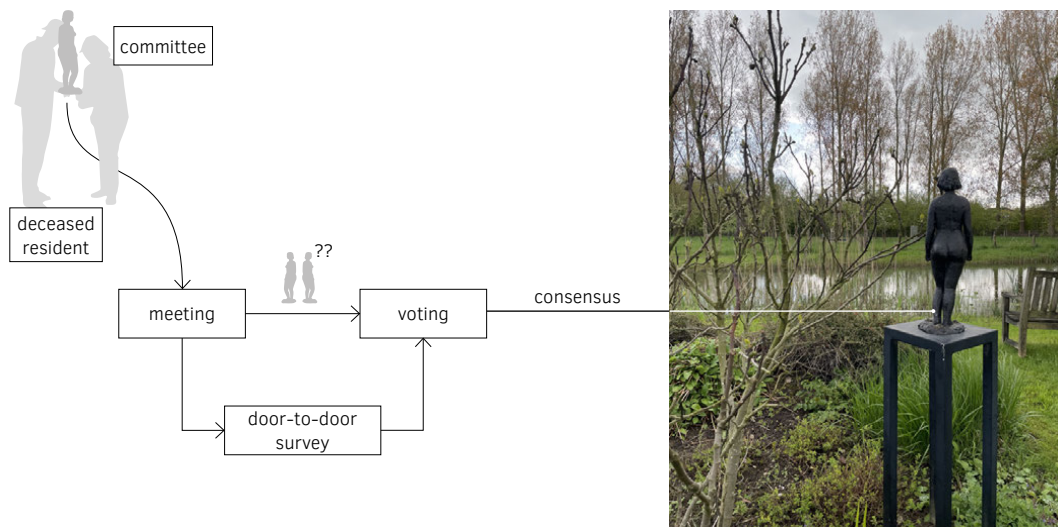


FIG. 3.63 Symbolism as a motivation for change in Het Kwarteel: decision-making process on the placement of a statue in memory of a former resident, debating whether it should face the garden or the pond.

Alongside the more frequent and noteworthy drivers, several other motivations were identified. These include residents' personal interest in gardening, neighbourly frictions, and practical concerns such as convenience, privacy, and safety. Some changes stemmed from phased developments, while others were linked to environmental conditions or resource limitations. Finally, several changes had

no clearly documented motivation. Their origins lie in tacit decisions, situated judgements, or individual initiatives. These cases underscore the everyday, often improvised character of decision-making in such settings.

3.5.5 Interactions leading to change (how)

As outlined in Section 2.3.2, interactions leading to change can be distinguished according to whether they are **planned or responsive**, and whether they follow **procedural (formal) or informal** modes. This distinction helps clarify how different types of change were negotiated in shared gardens.

Formal interactions were generally associated with substantial decisions, such as adding or removing trees, animal shelters, and large objects. These interactions primarily reflected procedural planning and typically took place during courtyard or committee meetings, including annual meetings where maintenance plans for the coming year were discussed. In some cases, procedural responses were required when specific issues arose, leading to special meetings convened outside the regular schedule. Occasionally, two or more meetings were needed before a decision was reached. Decision-making procedures varied across courtyards, ranging from full consent to majority voting. Tasks considered heavier or requiring professional support, such as trimming extensive hedgerows or cutting tree branches, were also planned during annual meetings and therefore combined elements of procedural planning and response.

By contrast, day-to-day maintenance activities were mainly associated with informal interactions. These included mowing lawns and trimming small hedges or bushes and often reflected informal planning, even when briefly anticipated during procedural meetings. The practical details of such tasks were typically settled through informal responses, for instance during conversations at the start of a working day, when residents agreed on the scope of work and who would carry it out. Questions arising during the work itself were usually resolved through lateral conversations or on-the-spot judgements. Moving objects within the courtyard, such as benches, or adding and removing smaller items like decorative pieces, also resulted from informal interactions, often emerging from casual conversations or individual initiative. Similar patterns applied to the upkeep of boundaries between individual and shared gardens and to the care of planting beds when carried out independently by residents. Non-verbal interactions were likewise linked to informal responses to vegetation growth and decay, as well as to negotiations involving animals, such as the opening made in a hedge in Kassenhof to allow a dog to pass, or the seasonal appearance of mole mounds influencing lawn care.

Most interactions occurred horizontally, within the level of the courtyard itself. Vertical interactions were less frequent and mainly involved consultation or advice, typically between courtyard representatives and neighbourhood-level entities such as BEL or Terra Bella. Regular contact between courtyards and the municipality during routine street maintenance was also reported but was not directly linked to alterations within the shared gardens.

3.5.6 Affected compositional layers (what)

Content analysis reveals that changes across the shared gardens in Lanxmeer affected multiple compositional layers (Figure 3.64). Among these, the **image form** was the most frequently affected, primarily due to vegetation growth, changes in planting schemes, and the addition of objects. All gardens showed alterations in this layer, highlighting its dynamic nature.

The second most affected layer was the **programme form**. Beyond shifts in use or affordances, including expanded gardening practices, this layer was shaped by modifications to objects, playgrounds, and animal shelters. While all gardens experienced some degree of change, Waterhof and Watertorenhof showed the highest number of occurrences. In Waterhof, which lacked a formal design plan, the garden evolved through incremental adjustments and gradually acquired new functions. In Watertorenhof, where one resident is a landscape architect, the garden committee responds promptly to breakage, decay, and underuse.

Next in frequency, changes to the **spatial form** were mostly related to planting, the placement of objects, and hedge configurations. De Trein exhibited the fewest changes in this layer. Its relative stability may be attributed to the governance context: the garden is managed by a VvE consisting of eight households. With limited tenant participation and strong cohesion among the homeowners, this group has maintained tight control over the garden's development.

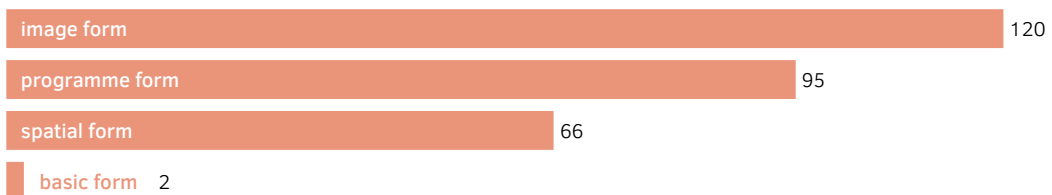


FIG. 3.64 What: overview of compositional layers affected by change across Lanxmeer's shared gardens.

The least affected layer was the **basic form**, with changes recorded in only two gardens: Kassenhof and Quartethof. In both cases, the original garden was entirely reconfigured within the first five years of use, following the arrival of new residents.

3.6 On transformation and continuity in Lanxmeer

This chapter examined how Lanxmeer's shared gardens have evolved over time through an analysis of composition, actors, and interactions, supported by content analysis. The findings present a nuanced picture of change across the original design (TO) and the current situation (TC), taking into account reported intermediate stages. Here, the results are discussed using the question words that guided the content analysis: a) where, b) when, c) who, d) why, e) how, and f) what.

A Where

Changes were most frequently observed in planting and objects such as playground and sports equipment. The boundaries between individual and shared spaces proved particularly vulnerable to transformation and were reported to be in flux. These findings indicate that transformation in shared gardens is closely linked to plant growth, regular gardening practices, and the community's evolving needs and wishes, particularly in relation to functional and spatial configurations.

B When

Many changes occurred regularly or sporadically over time, indicating that the garden is in constant transformation. When a timeframe could be identified, most changes took place either within the first five years or after 15 years, suggesting three distinct phases: an initial implementation period, a subsequent phase of maintenance during which routines stabilised and the garden matured, and a later phase of renewal.

C Who

Transformations were carried out either directly or indirectly by human and non-human actors, who frequently interacted and influenced one another. Among humans, residents clearly emerged as strong drivers of change, whether initiating, coordinating, or supervising modifications. They exhibited diverse motivations, skills, and levels of involvement — from those who gardened regularly to others who contributed through coordination, social initiatives, or decision-making. Committees often acted as facilitators rather than decision-makers, while organisations such as BEL and Terra Bella provided guidance and support at the neighbourhood scale.

Non-human context setters — particularly sunlight, rainwater, and soil — not only influenced the actors but sometimes prompted change when their constraints were not adequately accounted for. Other non-humans, such as vegetation, fungi, and microorganisms, actively participated in transformation, both directly and by influencing residents to act. Urban fauna and domestic animals appeared more commonly as indirect influencers.

Levels of participation among human residents varied both between courtyards and within the same garden over time and across seasons. Such fluctuations were generally accommodated through adaptive management practices, including outsourcing specific tasks, acquiring shared equipment, or adjusting planting schemes to reduce maintenance demands. In this sense, non-involvement did not necessarily hinder garden management but informed how responsibilities and care practices were redistributed.

Participation among residents was strongly related to social profiles, governance models, collective identity, and the garden's position within the housing project. Factors influencing engagement included involvement in the original design process, inclusion of tenants in decision-making, flexibility to accommodate diversity within the group, and clarity in governance models from the outset. Several examples showed that coherence and identity within the community were fostered by tangible and intangible symbols and shared meanings that brought people together.

The size and location of the gardens also influenced participation. Gardens that were too large for the number of residents, or that demanded more care than the community could provide, tended to cause management difficulties and sometimes led to outsourcing and reduced engagement. The proportion between shared and private gardens also proved relevant: when the difference in scale was not significant, residents felt more comfortable expressing themselves within their private spaces rather than in shared areas. Participation was also lower when the garden was located far from housing access routes and was not frequently visible to residents.

D **Why**

Motivations for change ranged from fostering leisure and social interaction to aesthetic preferences and ecological concerns. Aesthetic motivations often related to increasing visual variety through colours and textures, frequently expressed by adding plants, especially flowering species, or incorporating small decorative elements. Some changes were reactive, responding to plant growth, material wear and tear, or new life phases. The life cycles of residents, vegetation, and materials emerged as key temporal triggers, as shifts such as children growing up, materials deteriorating, or plants overgrowing prompted adaptations in both form and use. In addition, some changes sought to reinforce symbolic aspects valued by the community, such as names, views of natural or built features, and recurring elements within the gardens.

These motivations often overlapped before collective action was taken, suggesting a certain delay in making significant decisions.

E **How**

Gardens transformed through a combination of procedural and informal, planned and reactive, as well as verbal and non-verbal interactions, which often overlapped in practice. Substantial changes, such as adding or removing trees and large objects, generally resulted from procedural interactions involving meetings and collective deliberation. Smaller adjustments, including maintenance activities and the repositioning of minor objects, emerged through informal exchanges embedded in everyday routines, sometimes articulated verbally, but often shaped through tacit coordination or biophysical processes. Across cases, planned and reactive interactions were not opposed but interdependent, with anticipatory decisions frequently adjusted in response to unfolding conditions.

F **What**

Across the three garden complexes, changes were most prominent in the image, programme, and spatial forms. From TO to TC, all underwent compositional transformations, each with distinct emphases. In the northern complex, changes centred on rebalancing programme elements and recalibrating the relationship between openness and enclosure, often achieved through adjustments to vegetation and layout to accommodate new social and ecological functions. In the southern complex, change was primarily incremental, reflecting residents' evolving needs and values. The western complex exhibited the most pronounced compositional transformations, largely driven by a delay in the formal design process and by exchanges with other gardens in the neighbourhood. Overall, the balance between open and enclosed spaces, and between areas for social interaction and sensory experience, proved central to compositional stability. Imbalances in TO often triggered later alterations, as users sought greater compatibility with their aspirations and functional or symbolic coherence.

While transformation often occurred through adaptations in spatial, programme, and image forms, the basic form largely remained unchanged across the gardens. This suggests either that the original design retained a strong presence in residents' imagination, that evolving socio-ecological needs did not necessitate alteration in that regard, or that residents found it less straightforward to reconfigure the basic form than to adapt the other compositional forms.

Taken together, these findings reveal that Lanxmeer's shared residential gardens evolve through layered and interacting forces, shaped by both deliberate interventions and day-to-day and practices. They emerge as dynamic environments where spatial, ecological, and social processes continually intertwine, reflecting an ongoing negotiation between design and lived experience.

4 Expanding investigation

This chapter examines the two additional research sites — De Kersentuin and Vrijburcht — complementing the in-depth analysis of Lanxmeer presented in the previous chapter. Each case is introduced through a project overview, followed by a discussion of governance and design aspects. The governance section addresses the organisational structure, key actors, and forms of interaction within the shared gardens, while the design section focuses on their description and compositional features at the initial (TO) and later (TC or TF) stages. Each case concludes with an examination of the main changes identified and of how the actors involved responded to processes of landscape transformation. The chapter ends with a comparative reflection, highlighting common patterns and distinctive features that emerge across the two cases.

4.1 Kersentuin: a garden set nested in interludes

Considerably smaller than Lanxmeer, De Kersentuin presents an intriguing configuration in which the shared garden is divided into sectors interspersed between the dwellings. Situated partly on collectively owned land and partly on plots belonging to the municipality, the garden is cared for by the community under municipal supervision and remains publicly accessible. This distinctive combination of spatial configuration, ownership, public use, and care arrangements adds a new dimension to the understanding of landscape transformation in shared residential gardens.

Conception and realization

De Kersentuin is a small residential neighbourhood in the south-eastern part of Leidsche Rijn, Utrecht, covering approximately 1.7 hectares. (Figure 4.1) Completed in 2003, it comprises 94 dwellings arranged around a network of semi-public gardens and communal facilities. Designed by the architectural and engineering firm Kristinsson, together with the landscape architecture office Copijn Utrecht, De Kersentuin was among the earliest realisations of Collective Private Commissioning (*Collectief Particulier Opdrachtgeverschap*, CPO) as a development model in the Netherlands.

The initiative began in the summer of 1996, when two couples set out to form a co-housing group, soon joined by others who wished to build an environmentally friendly residential area. The group was invited to collaborate after responding to the municipality of Utrecht's call for citizen-led projects in the newly planned district of Leidsche Rijn. By December of that year, 15 people had gathered under municipal facilitation to form what became the core group of future residents. Their shared ambition was to create a sustainable and social neighbourhood that balanced ecological responsibility with community life.

Supported by the consultancy firms De Regie and later BIEB (Bouwen in Eigen Beheer), acting as process facilitators, the group developed the programme of requirements between 1996 and 1998. This document defined the project's guiding principles and served as the basis for negotiations with the municipality and the housing corporation Portaal. Architects Jón Kristinsson and Edo Keijzer were selected for their experience in sustainable design and participatory processes. By late 1998, a preliminary urban scheme had been completed in collaboration with municipal planners, after which the residents formally established the association De Kersentuin. Numerous working groups were created to address specific topics — design, construction, energy and water, plants, communication, and finance — allowing future residents to contribute according to their interests and expertise.

The design process unfolded through iterative collaboration between residents, professionals, and institutions. The urban structure and architectural typologies were defined between 1998 and 2000, leading to the signing of an intent agreement — formalising cooperation between De Kersentuin, the municipality, and Portaal, which committed to act as financial guarantor. Construction began in spring 2002, led by the contractor Slokker, and was completed by the end of 2003. Each household

participated in the detailed design of its dwelling, customising internal layouts while adhering to the collective framework. This participatory approach extended to the outdoor spaces, where residents co-designed the gardens together with landscape architect Hyco Verhaagen of Copijn Utrecht. (Vereniging De Kersentuin, n.d.)

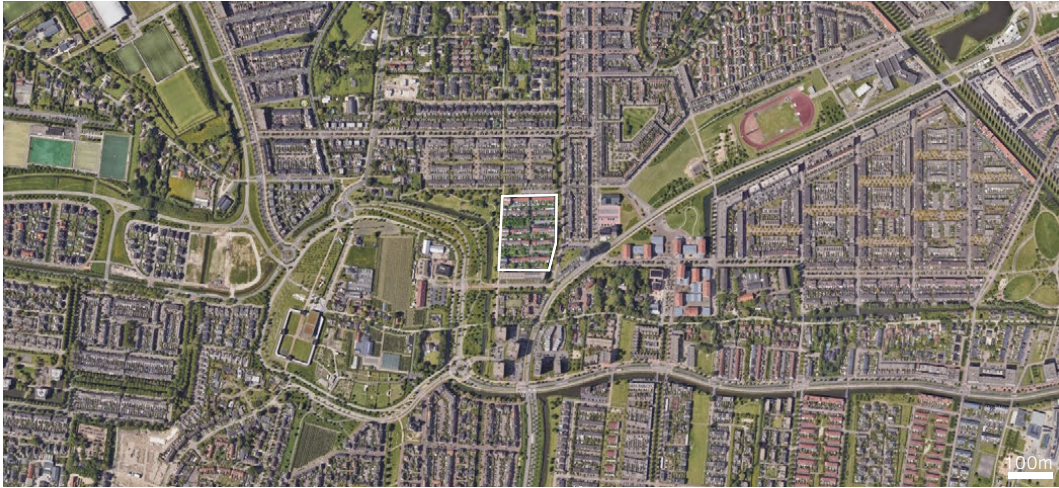


FIG. 4.1 De Kersentuin: project location. (Adapted from Google, 2025c)

Landscape context and implantation

The layout of De Kersentuin and the surrounding residential area was informed by nineteenth-century alignments. Along the southern and western sides of the neighbourhood, the streets Groenedijk and Het Zand follow the course of the former dikes that once marked the limits of the polder. To the east, the same structure guided the layout of elongated blocks. Both De Kersentuin and the adjoining residential area to the north follow a series of parallel lines oriented east–west, consistent with the historical polder structure. (Figure 4.2)

The site lies on an inactive fluvial ridge formed by Rhine deposits. The terrain is almost flat, with gentle slopes. It belongs to the Echteld Formation, composed of Holocene fluvial sands, silts, and thin layers of peat. The settlement occupies the slightly elevated part of this formation, where sandy loam and clayey sand provide good drainage across the entire site (Basisregistratie Ondergrond, 2024). These conditions supported the decision to manage rainwater through local infiltration rather than connection to the urban sewage system.

Groundwater levels fluctuate between roughly 0.7 and 1.2 metres below the surface (class IVu), typical of shallow, well-drained fluvial soils (Basisregistratie Ondergrond, 2024). Consequently, there are no occupied basements, and the parking garage is only partly buried.

The housing variation within De Kersentuin is considerable. The neighbourhood comprises a total of 94 housing units, including 47 single-family homes (35 owner-occupied and 12 rented), 14 maisonnettes (four owner-occupied and 10 rented), seven double-width ground-floor apartments designed for residents with disabilities (owner-occupied), 15 single-storey apartments (nine owner-occupied and six rented), six two-storey apartments and one penthouse (all owner-occupied), as well as several large live-work units. A communal building and a parking garage complement the residential programme. The homes are organised into nine rows, among which the shared open space is divided into eight sectors.

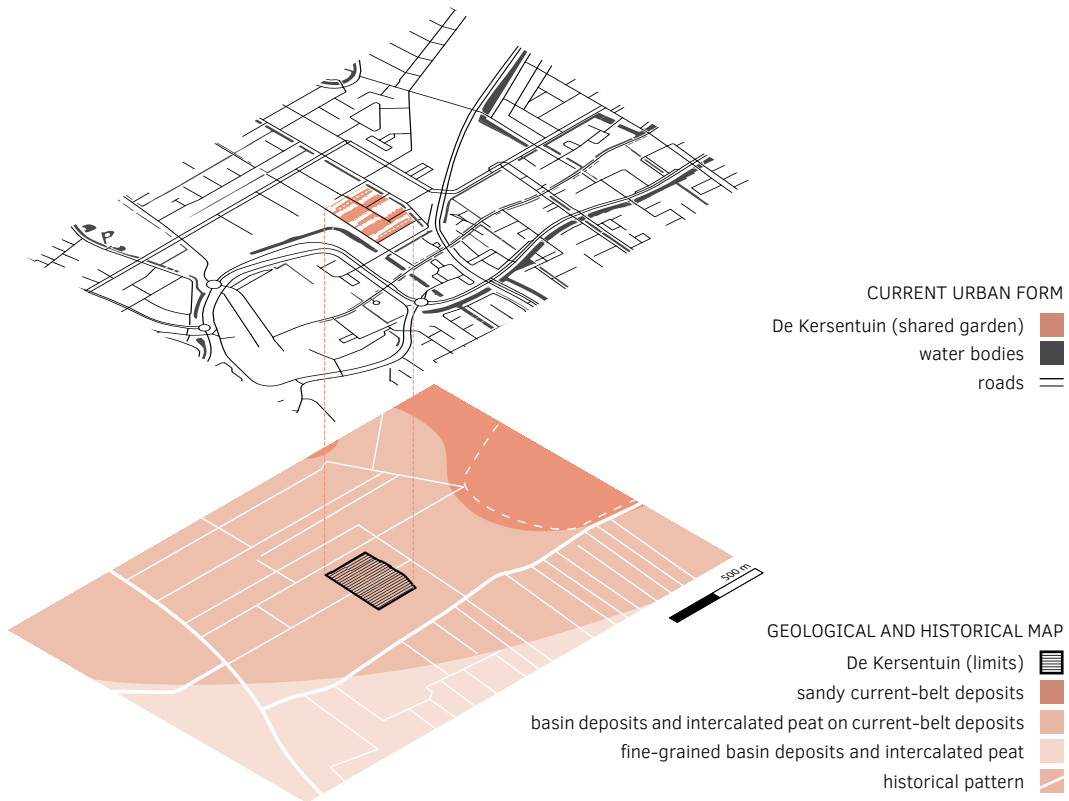


FIG. 4.2 De Kersentuin: location of the shared gardens in relation to landscape context (geological and historical map), and the current urban form.

Configuration, ownership and maintenance

The shared open spaces follow two ownership arrangements: municipal ownership, or collective ownership under the Dutch legal form of *mandeligheid*. In the latter case, individual private gardens are intentionally limited in size, creating space for a shared garden. Ownership of these collectively held areas is shared between the homeowners and the housing corporation of the adjacent rows of dwellings. Where land is municipally owned, an agreement was established whereby the community assumed responsibility for the construction and maintenance of the gardens, while the municipality remained responsible for safety-related aspects, including paths and infrastructure. Regardless of ownership, the gardens are entirely open to the public. (Figure 4.3)



FIG. 4.3 De Kersentuin: ownership, use, and maintenance responsibilities of shared open spaces.

Governance structure

De Kersentuin's governance model is primarily community-led, developed within a formal organisational framework that ensures cooperation with the Municipality of Utrecht and the housing corporation Portaal. Although the municipality owns part of the land where the shared garden is located, management responsibilities are largely delegated to the residents' association, which coordinates maintenance and collective activities.

The residents' association, Vereniging De Kersentuin, was established in 1998 by future residents during the planning phase. Its statutes set out membership conditions, voting rights, and decision-making procedures. All homeowners automatically become members upon property purchase, while tenants may join voluntarily. The association is managed by a small elected board that organises the general assembly, where decisions are taken collectively and minutes are publicly shared. The board is supported by thematic working groups addressing topics such as construction, energy and water, plants, mobility, communication, and finance. The garden working group coordinates the collective gardening days and takes the initiative when vegetation maintenance is required, often seeking advice from professional gardeners. The mobility working group manages the neighbourhood's car-sharing system, established in collaboration with MyWheels (formerly Wheels4all), aiming to reduce private car ownership and promote sustainable transport while strengthening neighbourly ties.

Portaal, as the housing corporation, retains ownership of the rental dwellings and represents tenants in matters concerning maintenance and shared facilities.

Financial and organisational resources are shared between the community and the Municipality of Utrecht. The municipality covers roughly 90 per cent of the annual maintenance costs (around €5,000 in 2023), while the remaining expenses are met by residents through monthly contributions of about eight euros per household. These funds are administered by the treasurer of the resident's association and approved annually by the general assembly. The association operates under its own statutes, which grant decision-making autonomy over the shared gardens within the boundaries set by the municipality. Although no formal gardening regulation exists, agreements established in assembly guide maintenance practices and small-scale interventions. Structural changes, such as tree replacement or the installation of permanent elements, require prior consultation with the municipality, whereas routine care and planting decisions remain under residents' control.

At the time of establishment, most households consisted of couples in their forties with young children. Today, many of the original residents are in their sixties, and their children are now adults, some of whom have already left home. After 20 years, about half of the households have changed, while the rental dwellings have remained more stable, with only around 11 per cent turnover. Most newcomers are in their mid to late thirties, often with young families, indicating a gradual generational renewal and continuity in the neighbourhood's family-oriented character.

Overall, the governance structure of De Kersentuin remains straightforward: decisions are made collectively within the association, in consultation with Portaal and the municipality when required. This arrangement ensures continuity between individual ownership, collective management, and municipal oversight, supporting the long-term maintenance of the neighbourhood's shared gardens and open space

Beyond human actors, a range of non-humans also participate in the governance dynamics of De Kersentuin. Sunlight, rainwater, wind, and soil define the material conditions under which decisions about planting, maintenance, and drainage are made, influencing how residents and professionals respond to seasonal change. Trees, hedges, and flowering plants structure the perception and use of shared spaces, while small fauna — including birds, hedgehogs, and insects — play a role in shaping maintenance priorities and ecological awareness. Together, these biotic and abiotic agents form an integral part of the neighbourhood's socio-ecological fabric, continuously interacting with human practices of care and decision-making.

Actors characterization

In De Kersentuin, human actors operate across three main levels: the housing row, the shared garden, and the municipality. At the level of each housing row, the actors include residents — both homeowners and tenants — the homeowners' associations (VvEs), and the housing corporation. At the level of the shared garden, additional actors comprise the residents' association (including its board and working groups), third-party professionals, and visitors or passers-by. At the municipal level, the key actor is the Municipality of Utrecht. Biotic and abiotic non-human actors operate across all levels. These human and non-human actors display varying degrees of interest and power in relation to the shared gardens.

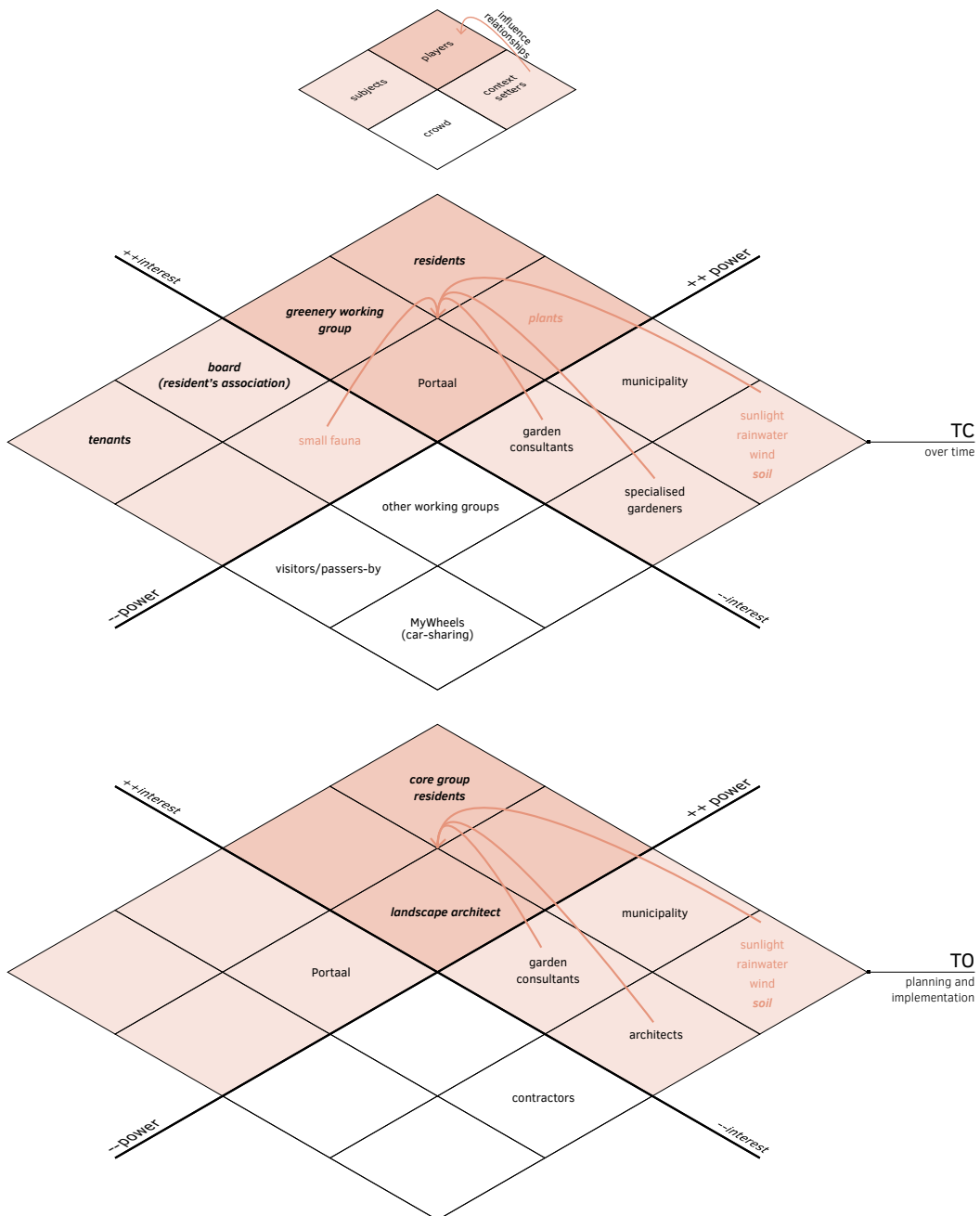


FIG. 4.4 De Kersentuin: actors' interest, power, and influence during the elaboration and implementation of the shared garden (TO) and in later years (TC). The grid situates human actors (black) and non-human actors (colour) operating at the level of the shared garden (in bold italics) in relation to those at other levels.

At the initial stage (TO), the core group of residents acted as the main players, defining the programme of requirements and developing the design of the shared open spaces together with the landscape architect. The latter is also considered a main player in this phase due to their professional expertise and significant influence on the landscape composition. The municipality functioned as a context setter, alongside the architects responsible for the spatial layout of the buildings that framed the gardens. Garden consultants also played a contextual role, while non-humans — such as sunlight, rainwater, wind, and soil — acted as ubiquitous context setters. The housing corporation Portaal served as a subject, holding interest in the project's outcome as financial guarantor but without direct representation in the design or implementation phases. Contractors were part of the crowd. Over time (TC), the residents and the garden working group consolidated their position as main players, together with Portaal, which came to represent tenants in matters related to the shared gardens and other communal areas. Plants themselves also became part of this group, given their strong agency in driving garden transformations. The Municipality of Utrecht, together with garden consultants, sunlight, rainwater, wind, and soil, remained as key context setters, joined later by specialised gardeners. Tenants and the board of the residents' association acted as subjects, alongside the small fauna. Other working groups, the car-sharing company MyWheels, and visitors or passers-by formed the crowd.

The power–interest–influence grid for De Kersentuin highlights a configuration in which resident agency consolidates early and remains strongly central over time. At the same time, the growing influence of plants and other non-human actors underscores how sustained engagement with the garden leads to forms of negotiation that extend beyond formal governance arrangements. The grid thus illustrates a mode of transformation characterised by continuity of resident involvement, gradual institutional withdrawal, and increasing ecological agency. (Figure 4.4)

Procedural and informal interactions

Procedural planning within De Kersentuin is straightforward and resident-led. Formal decisions on the collective areas are taken at the general assembly, convened once or twice a year and open to all members. Voting follows a simple-majority rule, with two votes allocated to each household, which allows household members to cast different votes if they wish. Majority voting was adopted deliberately, as consensus-oriented models were considered impractical for a group of this size. Minutes are recorded and circulated, and agendas typically cover budgets, maintenance priorities, and proposals submitted by the garden working group or individual residents.

Professional gardeners are occasionally contracted to support the community with specialised maintenance tasks and to provide technical advice on planting and management. Their involvement is arranged through the garden working group and coordinated with the Municipality of Utrecht, ensuring that interventions are consistent with the neighbourhood's ecological principles and long-term maintenance planning.

Procedural responses are occasionally triggered by unforeseen or urgent situations. When a tree is damaged or vegetation becomes diseased, members of the garden working group or the board decide on the appropriate intervention and document the action taken, ensuring continuity in future maintenance. Similar responses occur when elements of the shared gardens require urgent repair or removal. In cases involving safety or public infrastructure — such as lighting, paving, or drainage — the responsibility shifts to the Municipality of Utrecht, which is contacted directly by the association to address the issue.

A substantial part of coordination takes place through working groups. The garden working group plays a central role in setting the yearly calendar for collective gardening days, defining seasonal maintenance tasks and allocating responsibilities among residents. While the schedule is prepared in advance, adjustments are occasionally made in response to weather conditions such as prolonged rainfall or drought. The dates of collective gardening days are circulated through the association's digital newsletter and displayed on a notice board fixed to the façade of the communal building, which occupies a central position within the neighbourhood. Participation is open, and residents join according to their availability; typically, around 20 to 40 people take part in each gardening day, within a community of 94 dwellings. These arrangements allow activities to remain flexible and inclusive while ensuring continuity in the maintenance cycle.

Informal interactions complement these procedures and are often more visible in daily life. Gardening days, for instance, combine practical work with social engagement. On such occasions, small issues are addressed on the spot, such as temporarily rearranging seating areas. Residents also take individual initiatives, such as watering or trimming vegetation around private entrances, actions that contribute incrementally to the collective maintenance effort. The hedgerows separating private and shared gardens are maintained under the coordination of the garden working group in consultation with residents. While the group seeks to keep a consistent height and appearance across the neighbourhood, individual households sometimes request specific adjustments, which are discussed informally.

The communal areas host informal gatherings and seasonal activities, such as shared meals and small celebrations, while residents occasionally bring cuttings or surplus plants from their own gardens to enrich the shared spaces along their façades. The playgrounds are lively meeting points, used not only by local children but also by those from neighbouring streets, contributing to the open and welcoming character of the area. Furthermore, the spatial layout of De Kersentuin encourages frequent encounters among residents in their daily routines. Short streets, open rows of housing, and the central position of the communal building create opportunities for casual meetings when entering or leaving homes, passing by, tending to plants, or accessing the parking garage. These repeated encounters strengthen neighbourly relations and reinforce residents' sense of connection to the shared gardens.

4.1.3 Garden design

The shared garden of De Kersentuin was designed through collaboration between the landscape architect Hyco Verhaagen (Copijn Utrecht) and the future residents. Once the overall neighbourhood layout had been established, the gardens became the focus of a participatory design process in which residents contributed ideas for use, planting, and atmosphere. Consultations with the municipality ensured that maintenance and safety requirements were compatible with the intended community management. The resulting design combines ecological planting principles with residents' expectations for social interaction and everyday contact with nature.

The design plan divides the shared space into eight thematic sectors — Kerserbongerd, Bessentuin, Zintuigentuin, Daktuin, Kriekenbos, Vlinderhof, Inheemsetuin, and Kruidentuin — distributed between the Atalantahof and Aureliahof. Each sector reflects a different aspect of everyday life or of the natural environment, from play and gathering to fruit, herbs, or native vegetation. These themes are expressed through the spatial composition and character of each sector and shaped by their position within the housing layout and by the way residents use and maintain them.

This section is organised into ten parts. The first eight parts provide concise descriptions of each garden sector, outlining their spatial configuration and highlighting the most salient aspects of transformation observed from implementation to the current situation. These descriptions focus on the evolution of the designed space in broad terms, without aiming to exhaustively document all minor modifications. Part nine examines the compositional forms of De Kersentuin — basic, programme, spatial, and image — at both the original design plan (TO) and

the current stage (TC), allowing for a comparative reading across sectors. The final part addresses participation in garden transformation, focusing on how human and non-human actors interact within De Kersentuin and how these interactions have shaped the garden's development over time. (Figure 4.5)

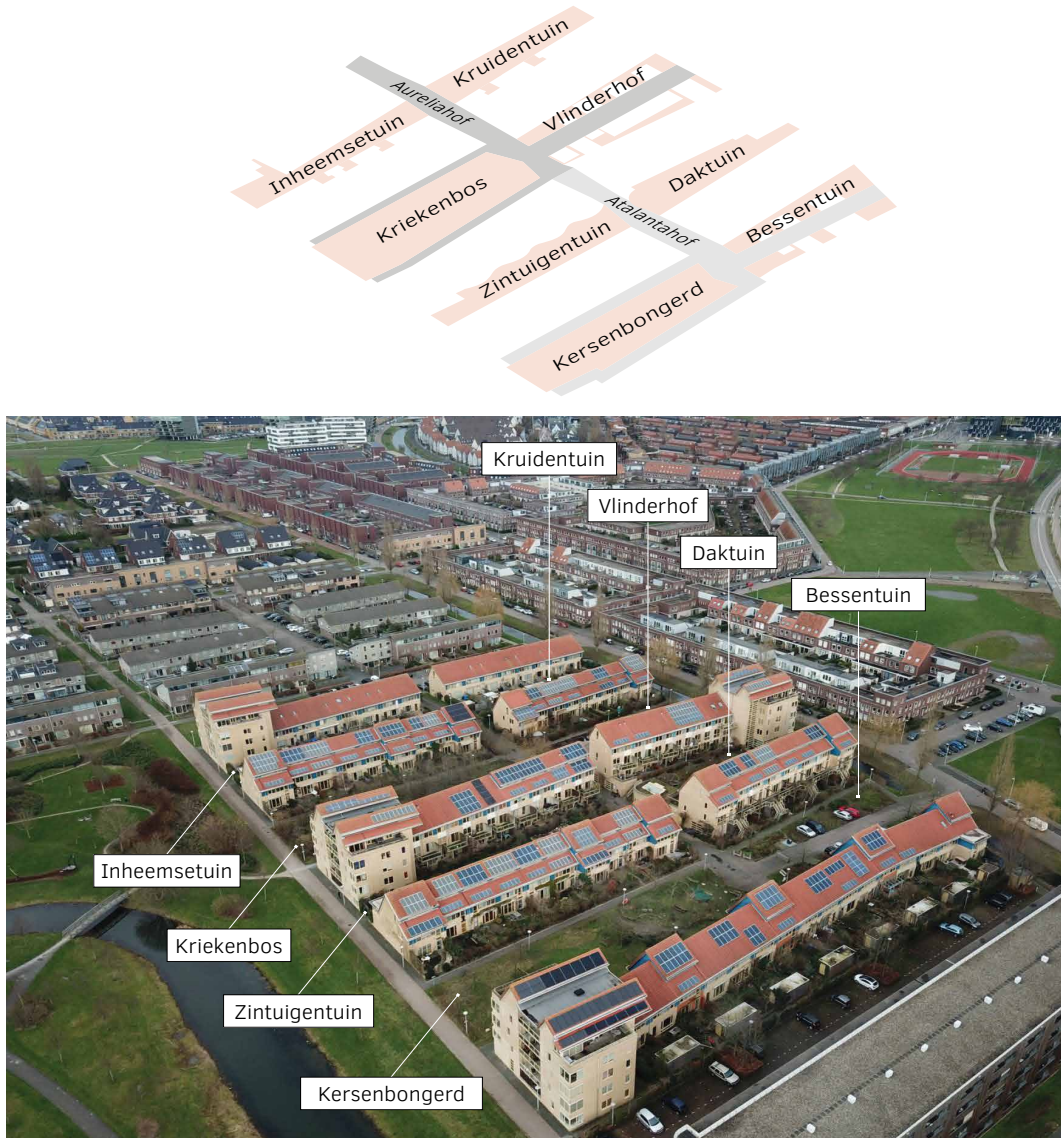


FIG. 4.5 De Kersentuin: bird-eye view and names and locations of the garden sectors. (Photograph adapted from Vereniging De Kersentuin, n.d.)

Kersenbongerd, Atalantahof

The southernmost sector consists of a roughly rectangular, herb-rich grassland with gentle slopes and scattered trees, including common medlar, plum, and walnut. The sector takes its name from the former orchard that once occupied this area. A central open space cuts through the field, functioning as a small square used for neighbourhood gatherings. It is a lively hotspot where children play and socialise. On the western side, a double swing provides play opportunities, while on the eastern side, a sandpit with built-in benches forms another focal point. In the original design, the landscape architect had proposed a water garden, but the community decided otherwise, fearing it would attract too many visitors from outside the neighbourhood. Nevertheless, children from nearby housing projects often come to play here, and residents consider the playground a success in encouraging social interaction. On occasion, children even knock on the doors of the houses next to the playground to use the toilet — a simple gesture that reflects the informal and trusting relations fostered by the setting. (Figure 4.6)

Following the initial programmatic and spatial design changes, including minor adjustments to the central square and the decision to forgo enclosing hedges, transformation in this sector has primarily occurred through expected cycles of plant growth and maintenance, reinforcing the openness and atmosphere of the original design intent.



FIG. 4.6 Kersenbongerd, Atalantahof: impression of the garden. (Photograph provided by Vereniging De Kersentuin)

Bessentuin, Atalantahof

Immediately next to the Kersenbongerd lies one of the neighbourhood's open parking areas. During the planning phase, residents proposed a parking ratio of 0.7 spaces per dwelling to encourage car sharing, while the Municipality of Utrecht considered this insufficient and suggested 1.2 spaces per dwelling. A compromise of one parking space per home was eventually reached, with most spaces located in the semi-underground garage. The lack of reported disputes among residents suggests that parking capacity has been sufficient. (Figure 4.7)

The landscape architect designed a flexible layout in which modular garden plots replaced part of the parking provision, allowing residents to determine and adjust the number of parking spaces from implementation onwards. The original design proposed these plots to be planted with berry shrubs — including Rubus, red and white currant, gooseberry, and raspberry — with pairs of walnut trees at both ends of the parking street and privet hedges between parking spaces. During implementation, residents opted to realise only a limited number of parking spaces. Confident that additional capacity would not be required, they later planted two additional trees within the modular plots and chose not to implement the proposed hedges, favouring a more natural over a geometric appearance. Over time, plant growth, seasonal change, and selective maintenance practices led to a gradual densification and mixing of ornamental and berry vegetation, resulting in a more organic form than originally envisaged. Along the edge facing Atalantahof, residents gradually added four built-in benches made of wooden logs and planks, providing informal seating in this public area.



FIG. 4.7 Bessentuin, Atalantahof: impression of the garden. (Photograph provided by Vereniging De Kersentuin)

Zintuigentuin, Atalantahof

Located between two buildings, the Zintuigentuin forms an elongated strip that feels more enclosed than the two previous sectors, both due to the height and proximity of the surrounding buildings and to the density of planting. This sector was designed to stimulate the senses — particularly smell and taste — with species such as lavender, chamomile, daffodil, sage, hyacinth, and catnip. (Figure 4.8)

The garden can be accessed from both the west and the east. The western entrance, facing the outer street, is narrow and densely planted, offering an intimate transition into the space. At the opposite end, a small resting area covered with climbers provides a sheltered and quiet spot. In the original design, a straight pathway connected these two points, running close to the façades. Four distinctive planting patches extended from this path towards the individual gardens on the other side, one of which was designed as a seedling bed, with broad crossings in lava stone and woodchips between them.

During implementation, residents reshaped the straight pathway into a gently undulating path. They also enlarged the planted areas, narrowed the crossings, and replaced part of the lava-stone ground covers with grass-concrete tiles to reduce surface heat. Following implementation, subsequent change in this sector has been limited to routine gardening, seasonal growth and decay, and small-scale decorative additions along the façades, resulting in a densely planted garden. A dead hedge was later added to provide habitat for small urban fauna.



FIG. 4.8 Zintuigentuin, Atalantahof: impression of the garden. (Vereniging De Kersentuin, n.d.)

Daktuin, Atalantahof

The Daktuin is located above the semi-underground parking garage and the community building, positioned between two rows of apartments. The central collective area is covered with lava stone and interspersed with planted beds containing clinopodium, germander, sunrose, yarrow, and other perennials. On one side, lavender, hyssop, and thyme surround the glass roof of the communal building, while on the other, several seating spots provide places to rest. Hedges separate the shared area from the private gardens. (Figure 4.9)

The visual highlight of this space is a wooden gazebo located near the entrance. Instead of the square gazebo proposed by the landscape architect, the community chose a crescent-shaped structure oriented towards the garden sector, avoiding views dominated by the glass roof of the community building along Atalantahof. Beyond this early design modification, subsequent change in the Daktuin has been limited to predictable plant growth and routine maintenance, with non-human actors contributing primarily to the maturation of the planted beds and the consolidation of a spatial structure that remains close to the original design intent.



FIG. 4.9 Daktuin, Atalantahof: impression of the garden. (Photograph provided by Vereniging De Kersentuin)

Kriekenbos, Aureliahof

Also known as Kersbos, Kriekenbos is a pocket forest within the neighbourhood, composed mainly of *Prunus avium* (wild cherry), European hornbeam, and mountain ash. Shrubs such as common hazel, elder, and holly complement the forest planting, which is intersected by two paths. To provide spatial structure while the forest gradually developed under poor sandy soil conditions, the landscape architect designed arched tunnels made of braided willow twigs along these paths. The willow tunnels remained in place for approximately ten to 15 years, after which they were gradually removed as the material decayed and the developing trees assumed their structural role.

At the western edge, the original design proposed an observation tower rising to the future canopy height. This tower was never built, as residents ultimately feared it would compromise the privacy of nearby houses. Instead, branches and wood piles resulting from routine garden maintenance across the neighbourhood are retained on site, providing shelter for small urban fauna and reinforcing the forest character. At the eastern edge lies an amphitheatre (Figure 4.10). The original design proposed privet hedges to enclose the space; residents instead constructed a low brick wall and relied on the growth of a large weeping willow to form a living backdrop over time. Beneath the terraced seating, built into the grassy slope, runs a tunnel used during performances, which has also become a favourite place for children to play.

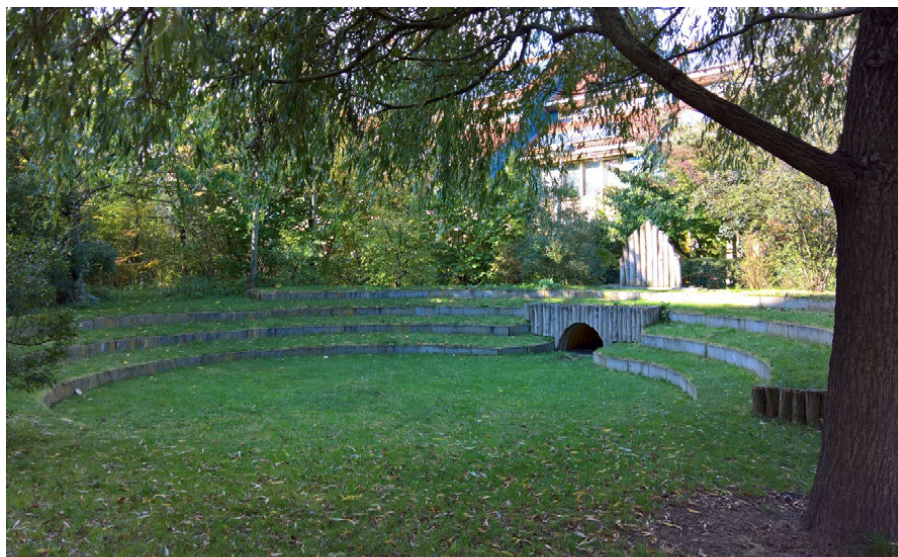


FIG. 4.10 Kriekenbos, Aureliahof: impression of the garden. (Vereniging De Kersentuin, n.d.)

Vlinderhof, Aureliahof

The Vlinderhof is another open parking area, similar in character to the Bessentuin but located next to the Kriekenbos. Like the Bessentuin, it combines parking spaces with modular planting plots and waste collection points. The original design proposed a mixed layout of parking bays and garden modules planted with a variety of berry species, including red, white, and black currants, gooseberries, yellow raspberries, loganberries, blackberries, and Japanese wineberries, with climbing plants near the waste containers. Hedges of beach rose were intended to soften the view between parking bays, while pairs of walnut trees were positioned at both ends of the parking street, mirroring the arrangement used in the Bessentuin.

In practice, residents opted to concentrate most parking spaces on the southern side, while the northern side became predominantly planted and the proposed hedges were not implemented. Along the southern row of parking spaces, a dense planted strip was instead maintained, gradually taking on a screening function. Over time, residents also built a wooden pergola-like structure around the waste containers to support climbing plants, further softening their visual impact. More recently, and at the residents' request, the municipality modified the parking surfaces so that each bay is now half covered with lava stones and half with grass-concrete tiles, reducing puddling during heavy rain. Residents explained that lava stones were not replaced entirely because they were considered more permeable, and that the mixed surface would improve drainage while retaining the material qualities of the original design. (Figure 4.11)



FIG. 4.11 Vlinderhof, Aureliahof: impression of the garden. (Vereniging De Kersentuin, n.d.)

Inheemsetuin, Aureliahof

Like the Zintuigentuin, the Inheemsetuin (or simply Heemtuin) is a narrow garden situated between two buildings, but here the planting consists of native species such as comfrey, dark cranesbill, forget-me-not, bistort, hawthorn, sweetbriar, and columbine.

In the original design, the garden had a rectilinear layout, defined by straight and diagonal lines forming trapezoidal planting beds. A seating area covered in lava stone occupied the central part, accompanied by two pathways: one running along the façades and another between a vertical pergola and the hedges separating the shared and private gardens. However, the residents preferred to adopt softer, more curvilinear forms to harmonise with the other gardens and to increase privacy for the ground-floor dwellings. They also placed a picnic table at the centre of the garden, on a grass-concrete surface, creating a simple yet welcoming communal spot. At the western end, a small square originally planned as a sitting area was also transformed by residents into a playground for very young children during implementation.

Following implementation, subsequent change in the Inheemsetuin has been limited to routine gardening, seasonal growth and decay of the planting, and small-scale decorative additions along the façades. These processes have resulted in a mature and densely planted garden. (Figure 4.12)



FIG. 4.12 Inheemsetuin, Aureliahof: impression of the garden. (Vereniging De Kersentuin, n.d.)

Kruidentuin, Aureliahof

The Kruidentuin mirrors the architectural setting and overall configuration of the Heemtuin: a narrow strip garden situated between two buildings, with a sitting area at its centre and two pathways — one running along the façades and another following the hedgerows that separate the shared and private gardens. Here, however, the focus is on herbs, and the spatial form is more curvilinear. At the western end, an herb spiral contains species such as chives, thyme, parsley, marjoram, basil, savory, hyssop, sage, dill, lemon balm, and lovage. At the eastern edge, a low wall supports climbing plants, including honeysuckle and clematis, softening the boundary of the space.

During implementation, residents added a picnic table in one of the sitting areas near the herb spiral and installed a small play structure for young children in the central part of the garden, further strengthening its social and family-oriented character.

Since construction, the Kruidentuin has evolved primarily through routine gardening and predictable cycles of plant growth and decay, resulting in a mature herb garden that remains closely aligned with the original spatial design. (Figure 4.13)



FIG. 4.13 Kruidentuin, Aureliahof: impression of the garden. (Photograph provided by Vereniging De Kersentuin)

Compositional forms

The compositional forms of De Kersentuin were drawn for two moments: TO, corresponding to the original design plan prepared by the landscape architect, and TC, representing the current condition of the garden.

The basic form of De Kersentuin is largely defined by lines running parallel to the façades, which typically determine the longitudinal pathways within each garden sector. These are intersected by occasional diagonals that define secondary paths and enclosed spaces within the sectors. In the Kersenbongerd, Daktuin, and Kriekenbos, a central longitudinal axis informs the distribution of spaces and objects. Some garden sectors were designed with a more rectilinear layout, while others follow a more undulating pattern, creating irregular, amoeboid planting beds. During implementation, the community opted for curved pathways throughout all sectors. In most cases, these changes did not weaken the basic form of the original design. One notable exception is the Daktuin. There, the decision to replace the originally proposed gazebo and to reorient it towards the garden has strengthened the axial character of the space. While the original square form was spatially neutral, the revised crescent-shaped structure introduces a clear directionality that reinforces the underlying basic form. Elsewhere, adjustments to paths and spaces were more modest in their effect: in the Kersenbongerd, there is a slight variation in the size, shape, and position of the central square; in the Bessentuin and Vlinderhof, new paths were added among the planting areas; and in the Zintuigentuin and the Inheemsetuin, pathways became narrower and more sinuous. (Figure 4.14 and Figure 4.15)

In terms of programme form, De Kersentuin balances spaces oriented towards social interaction with others offering more sensory or contemplative experiences, while also providing several opportunities for gardening beyond routine maintenance. The Kersenbongerd is one of the largest sectors in extent and is entirely dedicated to social interaction, whether through its playgrounds or the central square. The minor changes in form and use (such as replacing the proposed water garden with a sandpit) did not alter this function. Both the Bessentuin and the Vlinderhof are also oriented towards social interaction: they function as spaces of encounter where residents cross paths during daily routines, but they also host the main publicly accessible gardening areas. By contrast, the Kriekenbos provides a sensory experience through its pocket forest, while simultaneously accommodating a space for social gathering in the amphitheatre. The Zintuigentuin and the Daktuin similarly emphasise sensory experience, with the former also offering a small gardening area and showing only minor variations in form between TO and TC. Further north, both the Inheemsetuin and the Kruidentuin combine social and sensory functions, featuring pathways through vegetated corridors and small bays with seating for

informal encounters. In both cases, the addition of small playgrounds for younger children and, in the case of the Inheemsetuin the modification of its geometry, introduced slight changes to the overall layout. The Kruidentuin also contains a dedicated gardening area in the herb spiral, which has remained unchanged from TO to TC. Across De Kersentuin as a whole, a number of small, incremental changes in use and affordance have occurred over time that are not always clearly legible in the representation of programme form, but nonetheless merit attention. These include the addition of informal seating elements, such as benches in the Bessentuin and picnic tables in the Inheemsetuin and the Kruidentuin, which subtly intensified opportunities for everyday social interaction. Similarly, the introduction of small habitats for non-human actors, including dead hedges and a wood pile in the Kriekenbos, added ecological affordances without altering the overall programme form. (Figure 4.16 and Figure 4.17)

Similarly, De Kersentuin balances more open and more enclosed sectors, with spatial form shaped not only by design decisions but also by plant growth over time. The Kerserbongerd is the most open sector, owing to its size, the distance between the buildings, and the scattered distribution of trees amid lower vegetation layers. The sense of openness is even greater in TC, as residents chose not to surround the central square with hedges and dense shrubs as in the original plan. The Bessentuin and the Vlinderhof are also relatively open, particularly where the hedges originally proposed were not planted. In the Vlinderhof, minor adjustments, including a reduced number of waste containers and the addition of a wooden structure for climbing plants, resulted in subtle spatial changes without affecting overall openness. By contrast, the Kriekenbos has become highly enclosed over time. In TO, the willow-branch tunnels created semi-transparent corridors, whereas in TC the growth and densification of the woodland have produced a markedly enclosed forest space. The amphitheatre within the Kriekenbos, however, remains comparatively open: here, the hedges originally enclosing the space were replaced by a low brick wall and a large weeping willow, which now frames the area without fully enclosing it. The remaining sectors are generally more enclosed than the others, largely due to the proximity of surrounding buildings and dense planting. Over time, plant growth combined with intentional maintenance practices has contributed to achieving the more enclosed spatial structure envisaged in the original design plan, with the exception of the gardening areas in the Zintuigentuin and the Kruidentuin, which remain slightly more open. (Figure 4.18 and Figure 4.19)

Finally, in terms of image form, De Kersentuin balances park-like, forest-like, permacultural, and horticultural expressions. The Kersenbongerd and the Daktuin convey a more park-like character, while the Bessentuin, Vlinderhof, Zintuigentuin, Inheemsetuin, and Kruidentuin combine permacultural imagery, such as fruit trees and berry shrubbery, with horticultural elements, including seedbed gardens and the herb spiral. In the Bessentuin and the Vlinderhof, the gradual development of berry planting into denser and more informally structured vegetation has subtly shifted the image away from the more allotment-like appearance envisaged in the original design towards a more naturalistic expression. The most pronounced change in image occurred in the Kriekenbos, where the romantic willow tunnels proposed in TO gradually gave way to a dense pocket forest. In the amphitheatre area, the growth of a large weeping willow has further contributed a strong and recognisable image, becoming a defining visual element. Overall, few further changes occurred in terms of meaning between TO and TC. Differences in image are instead mainly related to materiality and detailing, including the replacement of lava-stone surfaces with grass-concrete tiles in some sectors, the introduction of dead hedges and wood piles as habitats for urban fauna, and a general shift towards more curvilinear forms in paths and planting beds. Together, these changes have subtly rearticulated the garden's visual expression without altering its overarching image structure. (Figure 4.20 and Figure 4.21)

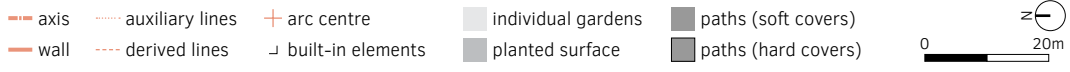
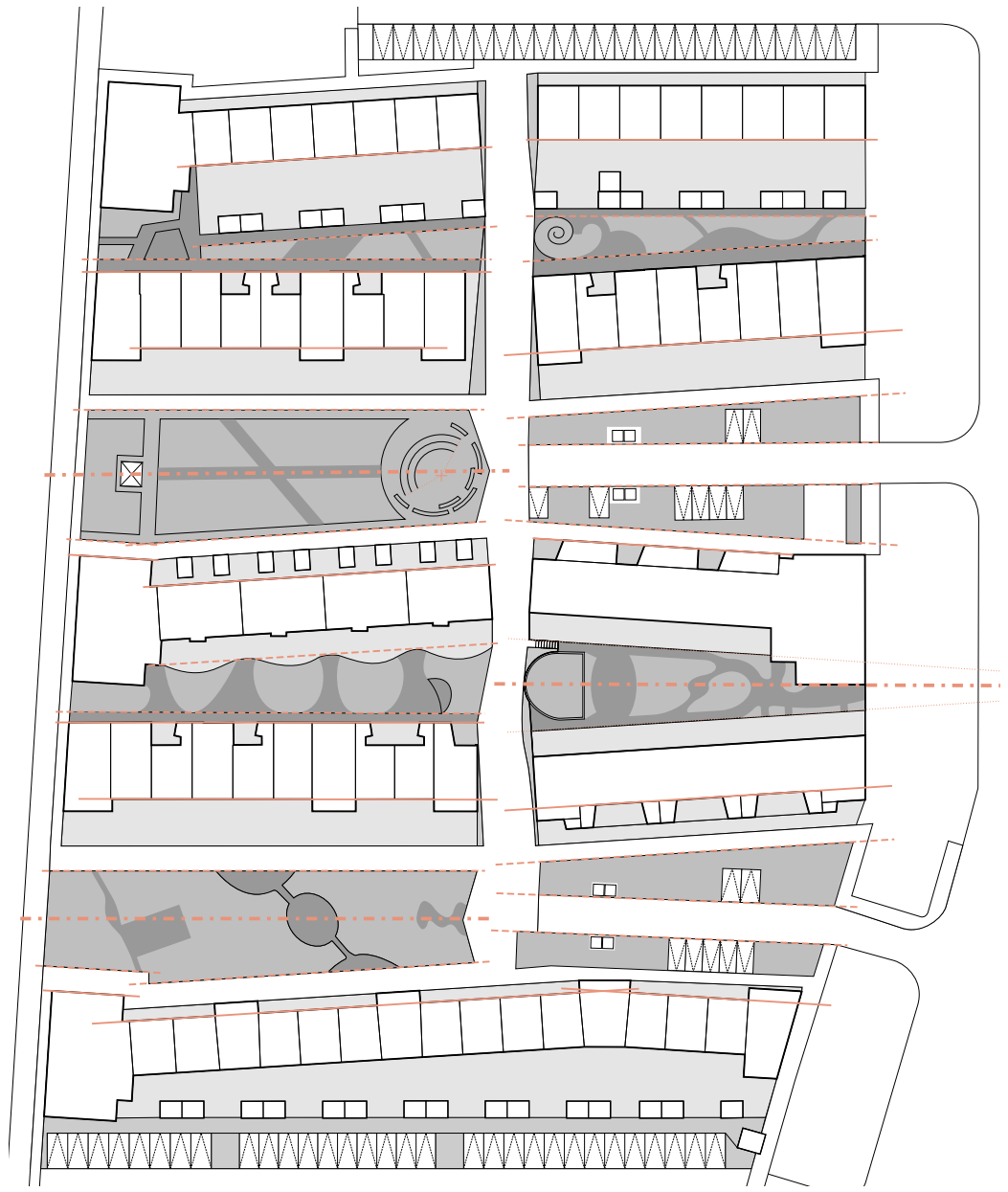
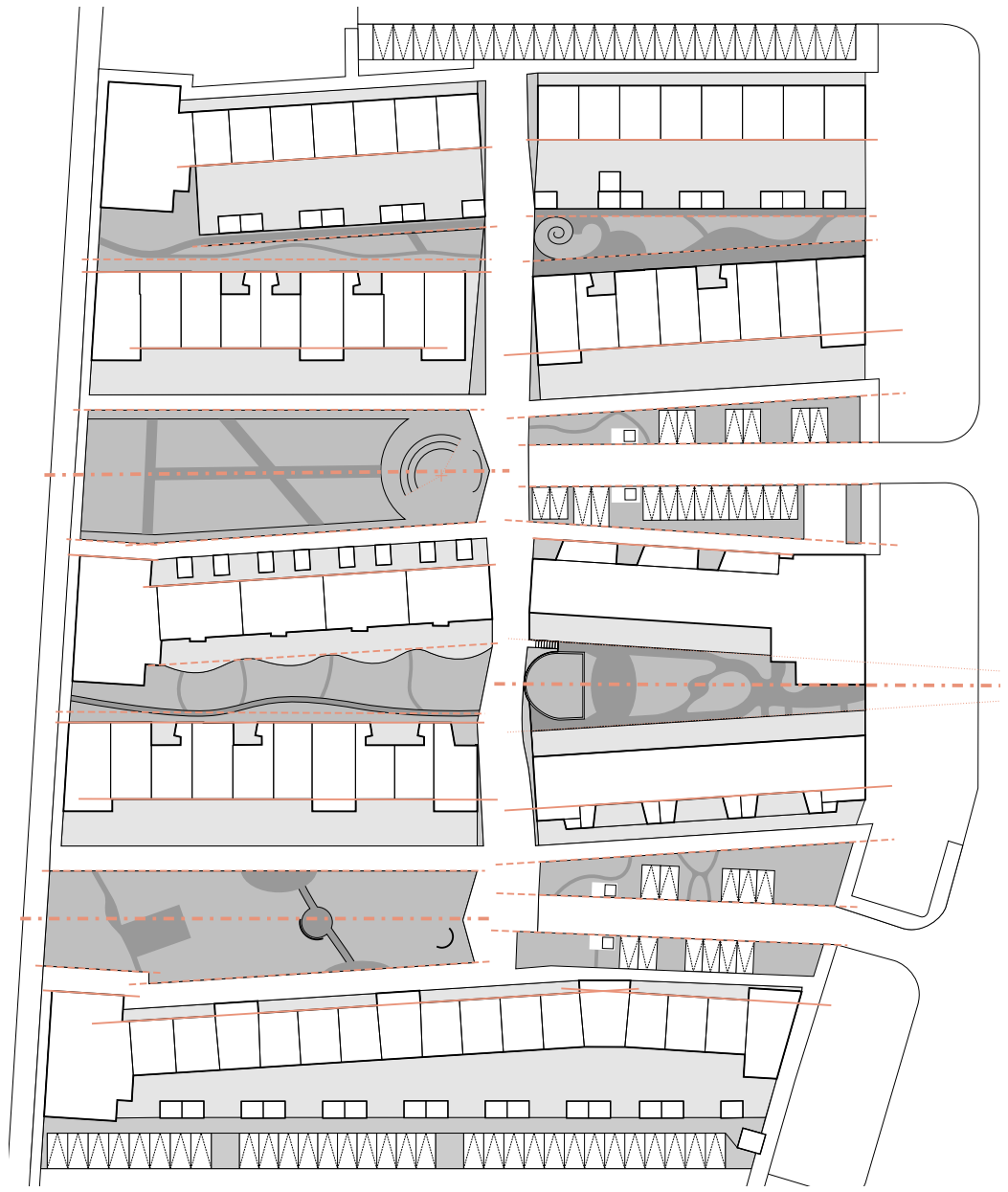


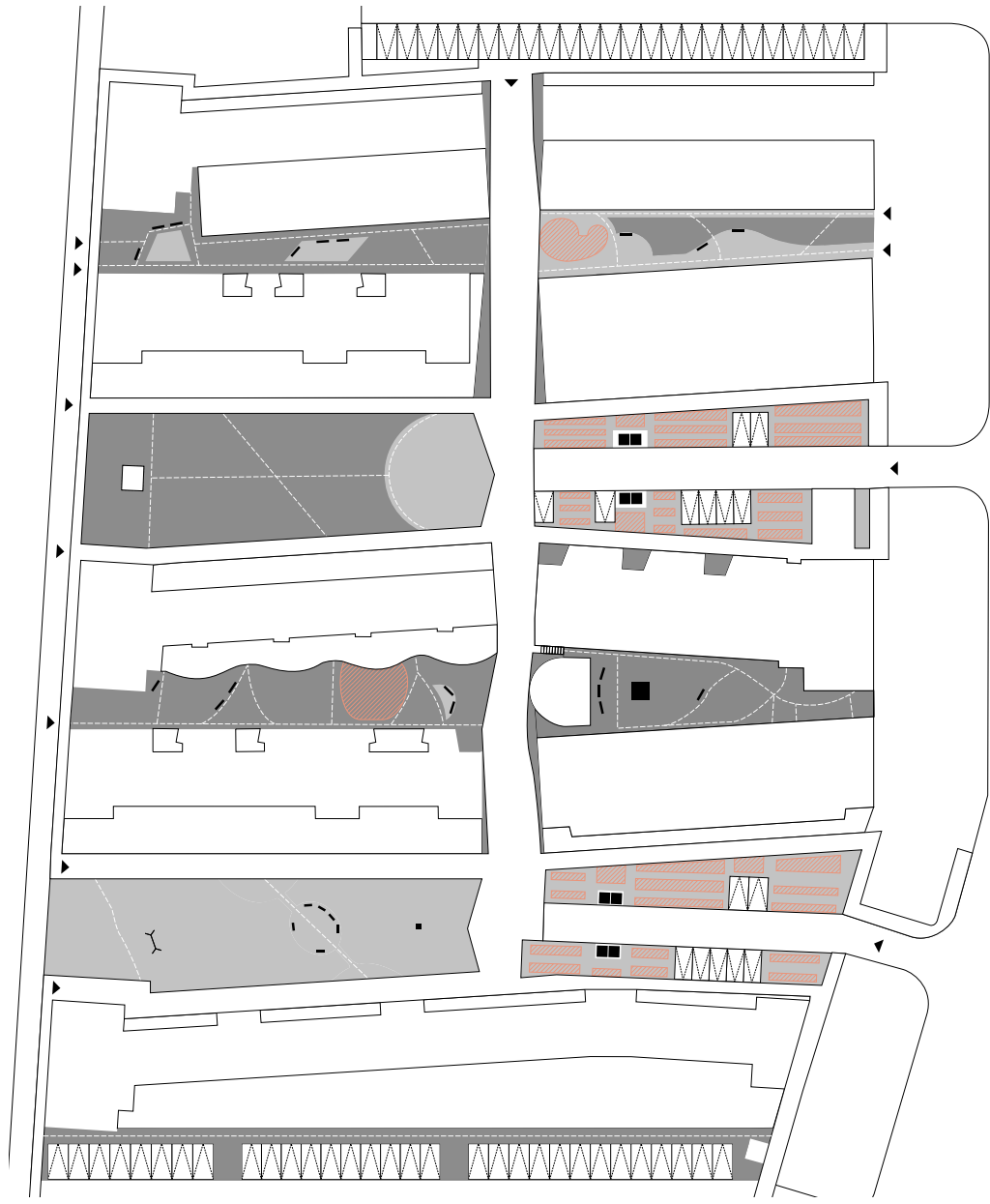
FIG. 4.14 De Kersentuin: basic form as per original design (TO).



- axis - - - auxiliary lines + arc centre □ individual gardens ■ paths (soft covers)
- wall - - - derived lines L built-in elements ■ planted surface ■ paths (hard covers)

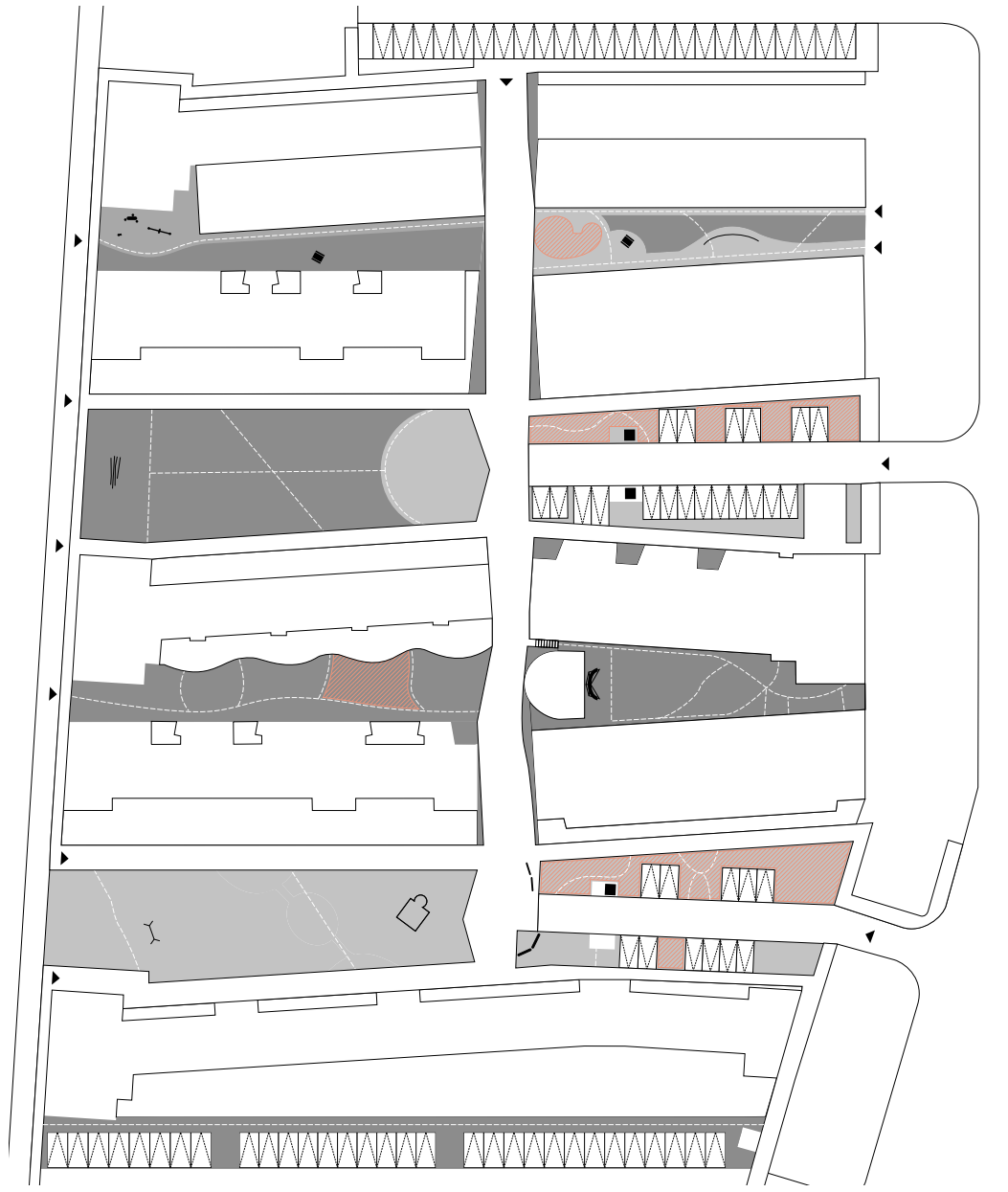


FIG. 4.15 De Kersentuin: basic form as found (TC).



◆ notable objects
 ▲ entrances ▨ gardening ■ social interaction ■ sensory experience ▩ pathways 0 20m

FIG. 4.16 De Kersentuin: programme form as per original design (TO).



- ◆ notable objects
 - ▲ entrances
 - ▨ gardening
 - social interaction
 - sensory experience
 - ▨ pathways
- z

20m

FIG. 4.17 De Kersentuin: programme form as found (TC).

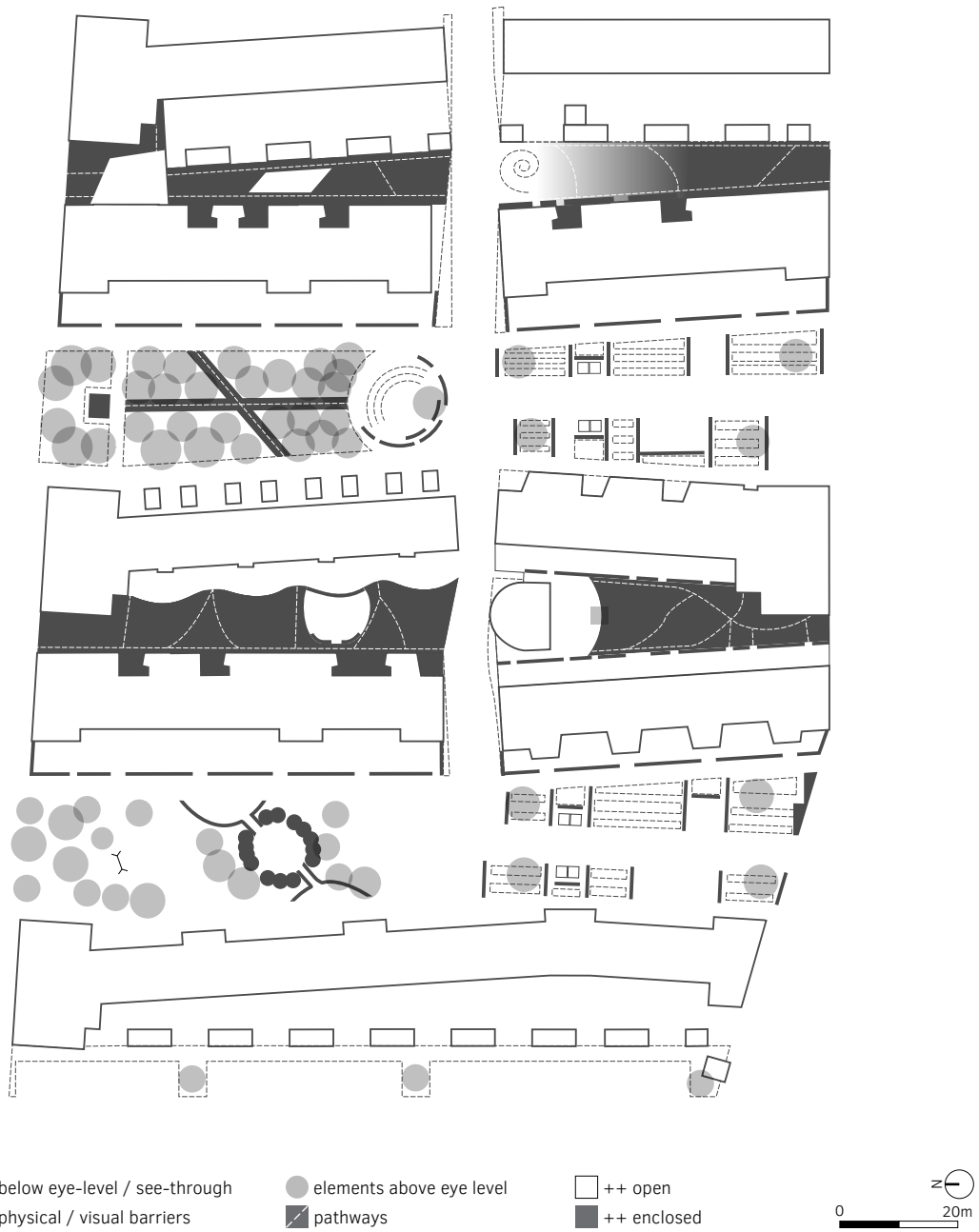


FIG. 4.18 De Kersentuin: spatial form as per original design (TO).

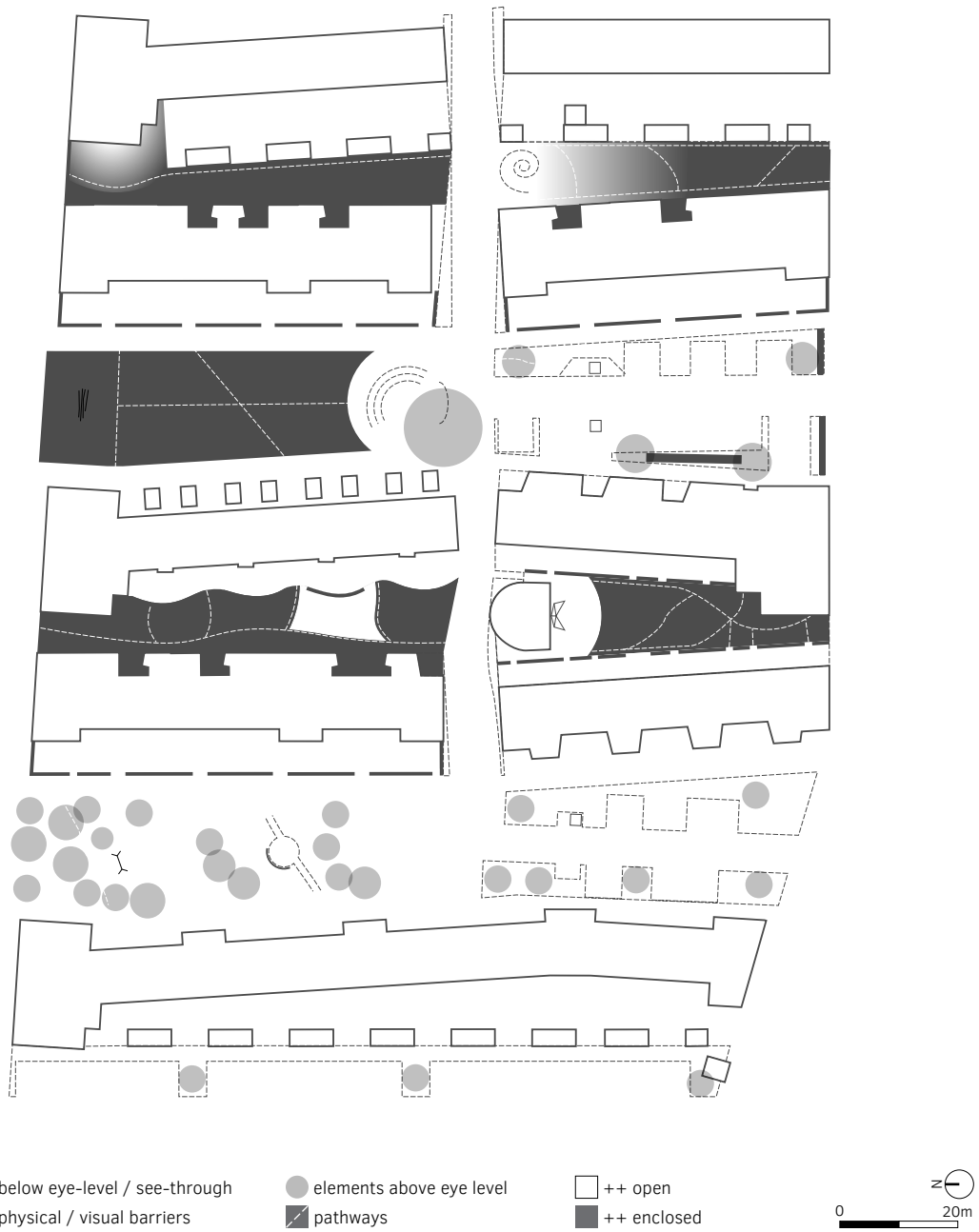


FIG. 4.19 De Kersentuin: spatial form as found (TC).

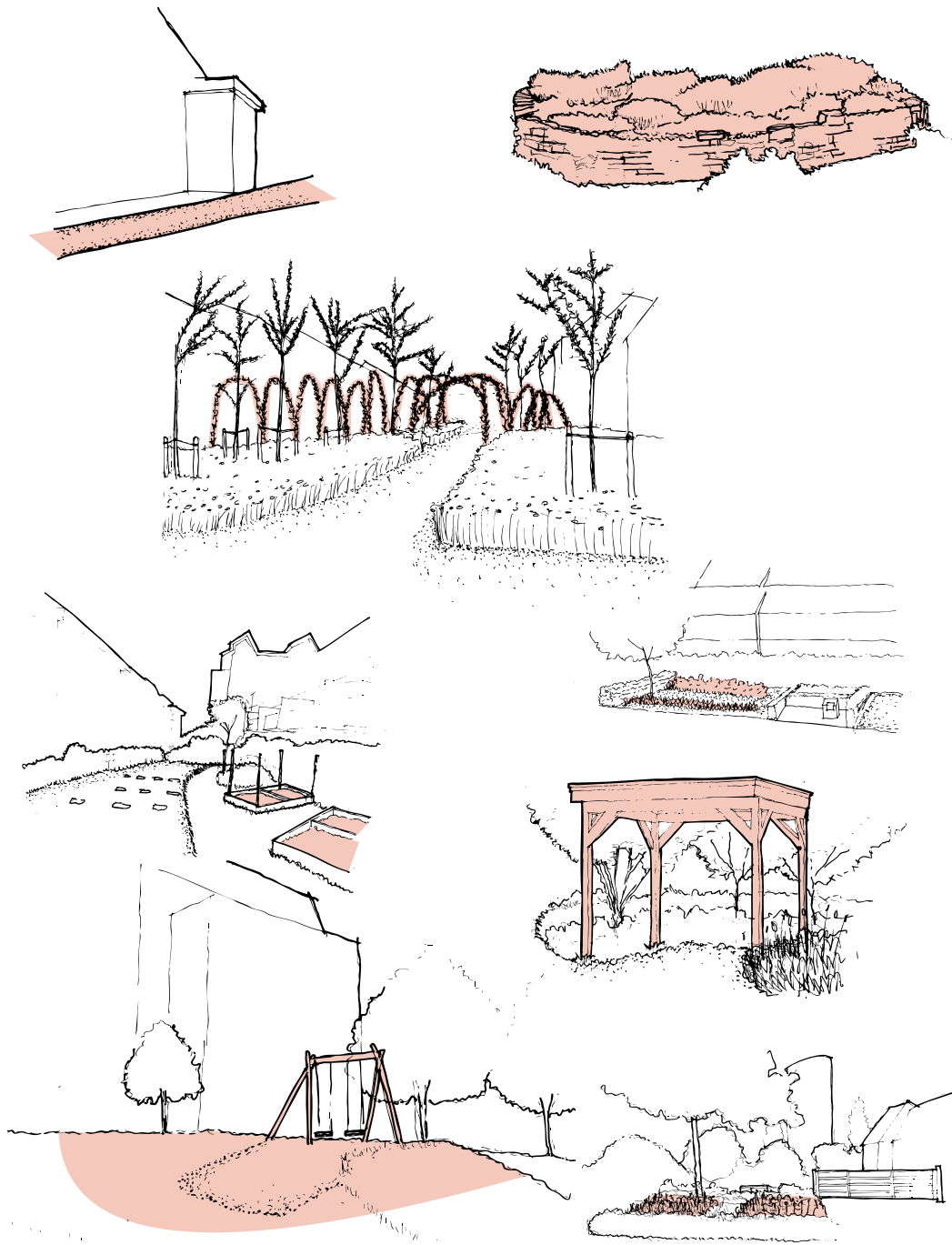


FIG. 4.20 De Kersentuin: image form as designed (T0).

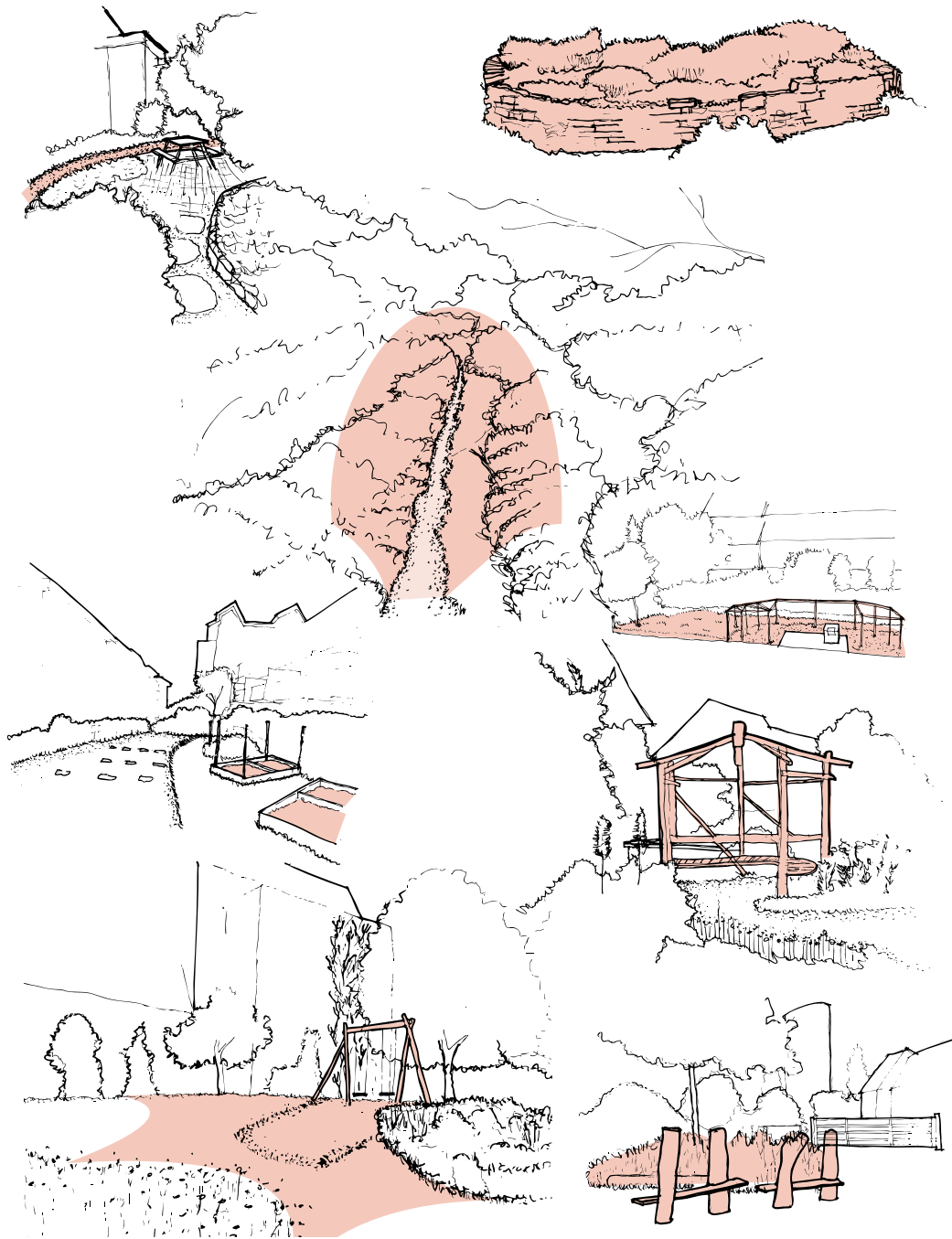


FIG. 4.21 De Kersentuin: image form as found (TC).

Participation in garden transformation

In De Kersentuin, the residents' association centralises decisions on garden management across all shared spaces, whether located on private or municipal land. Within this structure, the garden working group plays a key role. It takes minor decisions independently, coordinates consultation and voting for more significant matters, organises collective gardening days, and carries out the gardening itself together with volunteers. The group receives guidance from garden specialists and operates under the supervision of the municipality.

Besides taking part in the gardening days as volunteers, households are responsible for their own private gardens. In the shared gardens situated on collectively owned land, residents often make small contributions by adding their own plants, pots, or decorative elements, especially along the façades of their homes. The community as a whole has also modified public and semi-public spaces through the addition or relocation of objects, particularly outdoor furniture.

Transformation in De Kersentuin also involves clear participation from non-human actors, revealing a continuous process of negotiation between growth and human care. A strong example is found in the Kriekenbos sector, where a pocket forest has been gradually cultivated. Here, plant growth and human-led maintenance worked together to achieve the effect envisioned by the landscape architect and represented in the original design. Beyond this, the gradual growth, densification, and seasonal change of vegetation across the garden have played an important role in shaping how spaces are perceived and experienced today, contributing to degrees of enclosure, openness, and overall atmosphere. Urban fauna has likewise played an important role. The project was conceived to provide food for small animals through abundant fruit and flowering species, and over time additional habitats were introduced, including dead hedges and wooden piles. Rainwater and surface conditions have also influenced material transformation. In the parking areas, persistent puddling on lava-stone surfaces prompted residents and the municipality to replace parts of these areas with grass-concrete tiles. (Figure 4.22)

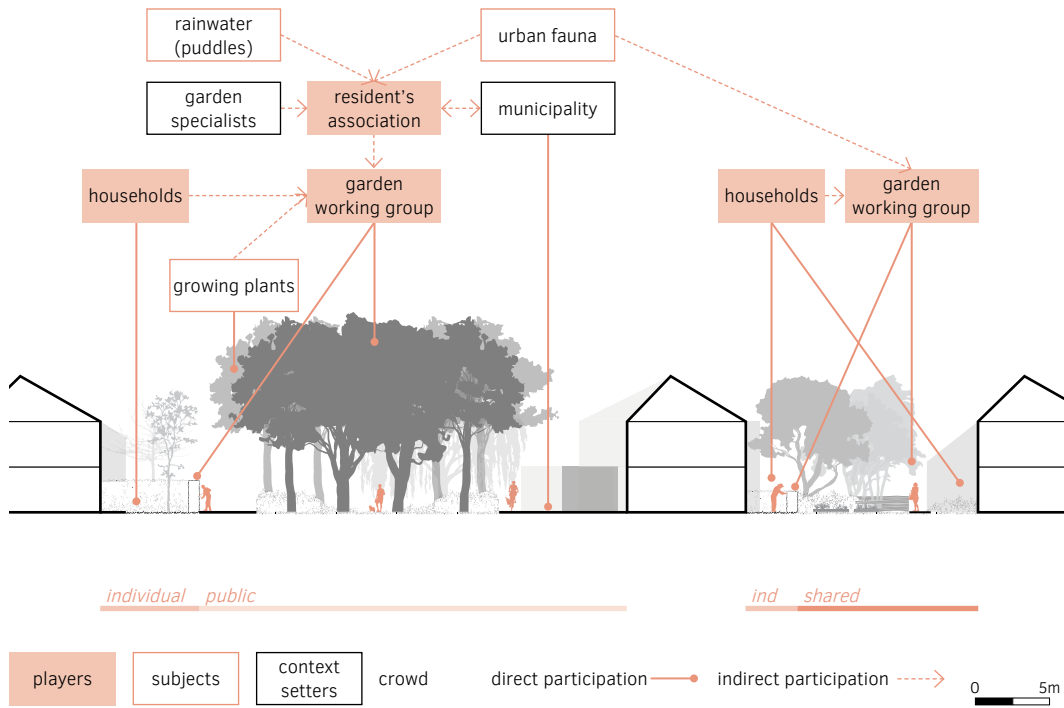


FIG. 4.22 De Kersentuin: participation in garden transformation and noteworthy interactions.

4.2 Vrijburcht: an inner garden beside the water

Unlike the two previous research sites (Lanxmeer and De Kersentuin), Vrijburcht is a courtyard embedded within a multipurpose live-and-work complex. It is located entirely on collectively owned land, on an artificial island along the eastern waterfront of Amsterdam, and is accessible in principle only to residents and users of the complex. With a configuration and history markedly distinct from the previous cases, Vrijburcht offers yet another perspective on the design and governance of residential green commons and sheds a different light on the findings related to change and landscape transformation.

4.2.1 Project overview

Conception and realization

Vrijburcht is located on Steigereiland, which was developed between 1999 and 2008 as part of the first construction phase of the IJburg development. Designed by Palmbout Urban Landscapes, together with H+N+S Landscape Architects, the masterplan for IJburg translated the idea of the ‘city as archipelago’ into an urban expansion in which water structures both land formation and urban layout. Within this context, Steigereiland was conceived as an experimental neighbourhood, promoting collective forms of housing and self-commissioned projects. (PALMBOUT, 1997) (Figure 4.23)

In 2000, the Municipality of Amsterdam launched a call for collective private commissioning (CPO) projects on Steigereiland. A group of friends and professionals — among them the architect Hein de Haan from CASA Architects — submitted a proposal for a mixed-use live-and-work complex combining housing, amenities, and a shared inner garden. Their plan, initially named IJ-Burcht, was selected from 27 submissions and officially allocated waterfront plot number 104 in 2002. Following this, the Vrijburcht Foundation was established to oversee planning, financing, and the sale of homes. (VLUGP, 2008)

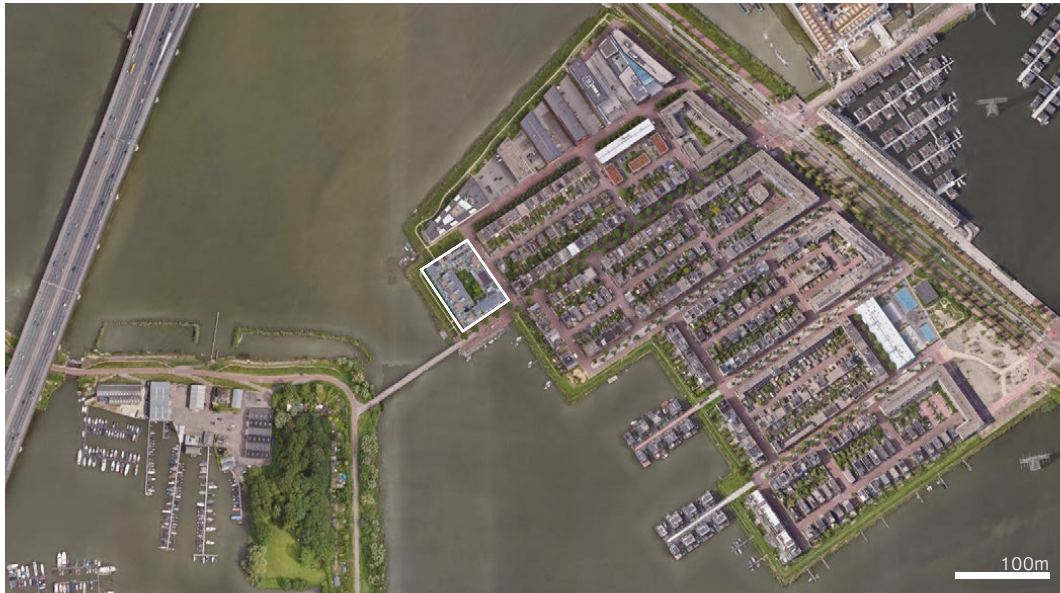


FIG. 4.23 Vrijburcht: project location. (Adapted from Google, 2025d)

The project was developed through close collaboration between the residents' foundation, the architectural office CASA, and the urban planning and landscape architecture office VLUGP Stedebouw & Landschapsarchitectuur. It comprised 52 dwellings, including apartments, maisonettes, and studios, together with a range of collective facilities: a café with a terrace, a theatre, a day-care centre, a hobby space, and a greenhouse. The De Key housing corporation provided institutional and financial backing through the development and ownership of half of the dwellings, including the assisted-living unit De Roef, as well as several public-oriented amenities. (VLUGP, 2007)

Realised through shared ownership and cooperative management, Vrijburcht reflects the experimental character of Steigereiland's early development phase. Residential, cultural, and social functions are combined within a single block, with the inner garden forming the spatial and social core of the complex.

The design of the Vrijburcht shared garden evolved through a participatory process that ran in parallel with the architectural design of the complex, allowing for close technical and spatial integration. Once the first architectural drawings were available, a garden committee composed of future residents was formed to collaborate with the landscape architecture office VLUGP.

This collaboration began with excursions to 13 shared gardens in the eastern districts of Amsterdam, followed by a survey in which participants identified preferred and undesired features. Future residents expressed a preference for gardens that were semi-private, walkable, and lushly planted, with variation in height, rainwater collection, and habitats for birds. Conversely, they rejected gardens that were overly public or ornamental, as well as those dominated by bicycles or impermeable surfaces.

The results of the survey were compiled into mood boards and discussed during a design workshop facilitated by VLUGP, in which seven future residents participated. Using a sand model, participants experimented with topography, placing mounds, valleys, and trees to articulate the garden structure. Based on these collective exercises, the designers Menno Vergunst and Henk Schuitemaker translated the outcomes into hand drawings, which were subsequently approved by the garden committee.

Implementation took place in 2007, following the completion of architectural construction, and closely adhered to the approved design, with only minor technical adjustments. The compacted reclaimed soil required loosening to accommodate tree planting, and small adaptations were made to integrate the underground car park and the rainwater harvesting system, which collects roof water in storage tanks used for irrigation. Six months after completion, the community marked the opening of the garden with a collective celebration, followed by a communal bulb-planting day.

Landscape context and implantation

Steigereiland forms the gateway to the IJburg archipelago, a group of artificial islands built in the IJmeer, east of Amsterdam. The land was reclaimed through the so-called 'pancake method', in which successive layers of sand were deposited and compacted to create new terrain (PALMBOUW, 1997). The archipelago lies within a calm ecological zone shaped by the Hoeckelingsdam and the Natuureiland, which protect the lagoon from wave action while creating habitats for birds and aquatic species. Between the mainland and IJburg, the corridor formed by the Diemerpark, Diemerzeedijk, and Diemervijfhoek constitutes a key ecological area, with the Diemerlagune also supporting small-scale recreational uses such as canoeing and boating. (Amsterdam, 2019)

Contrasting with the undulating contours of the neighbouring Diemerpark, Steigereiland is characterised by a structured urban grid. The main road S114 (IJburglaan) runs across the archipelago on a north-west to south-east axis, dividing the island into two distinct parts. The northeastern section combines floating

dwelling within an inner water body with compact building blocks on reclaimed land, while the southwestern section is organised along a series of streets that intersect the IJburglaan at near-right angles, creating a rectilinear pattern. (Figure 4.24)

Within this grid, Vrijburcht occupies a prominent waterfront plot, facing the sheltered waters of the Diemerlagune and the bicycle bridge leading to Diemerpark. Its configuration defines a rectangular perimeter enclosing an inner courtyard, framed on three sides by housing and open towards the quay. The block is car-free and pedestrian-friendly, with ground-floor workspaces and social amenities that activate the street edges, contributing to the liveliness of the quay. Altogether, Vrijburcht holds a strategic position in Steigereiland's composition. Its quiet enclosure within a compact block contrasts with the exposed waterfront setting, exemplifying the broader spatial logic of IJburg; a city conceived as a guest within a water landscape.

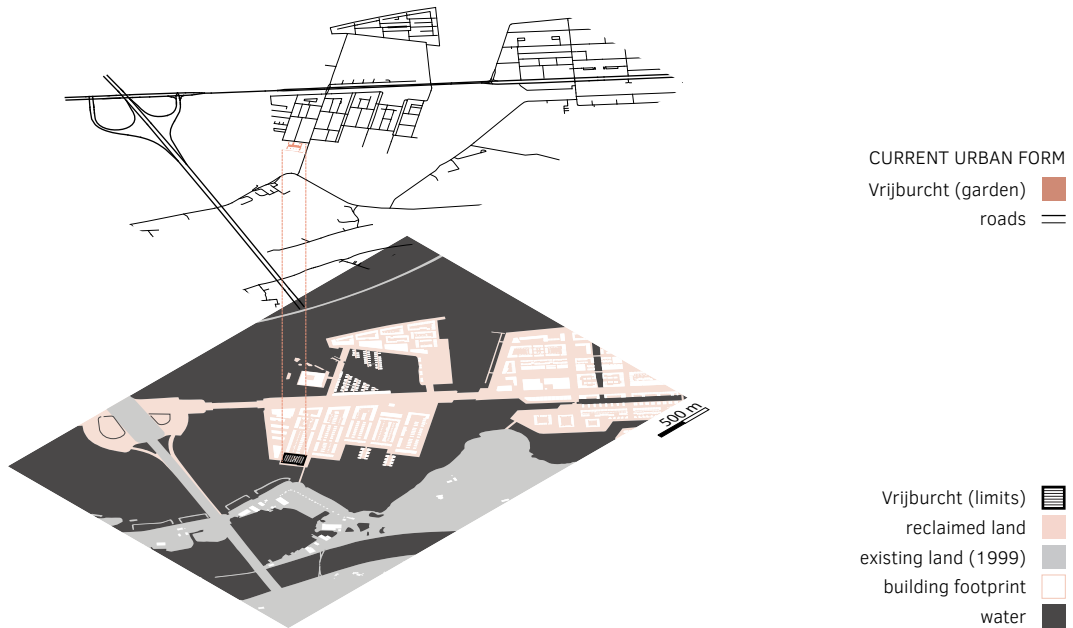


FIG. 4.24 Vrijburcht: location of the shared garden in relation to the current urban form.

Configuration, ownership and maintenance

The Vrijburcht complex, including the courtyard garden and the enclosing building block, stands on collectively owned land, bordered by public terrain. Alongside the homeowners, the De Key housing corporation also holds partial ownership of the complex. Along the waterfront, a narrow strip of collectively owned land forms the immediate interface with the public quay, creating in practice a subtle threshold between communal and public domains.

Within the block, all shared spaces — including the courtyard, access corridors, and galleries, as well as communal facilities such as the greenhouse and common DIY space — are accessible to all residents. Around the day-care centre, the outdoor area is fenced off for the exclusive use of children, marking a functional subdivision within the collective property. On the first floor, the alignment of rainwater pipes informs the division of the galleries into two zones: one kept free for circulation and another used by the adjacent households as semi-private outdoor space, which residents furnish and use for leisure. On the second floor, smaller outdoor areas connected to individual dwellings are separated from collective circulation, functioning more clearly as private extensions of each home.

Management responsibilities are clearly defined and agreed upon among the parties involved. The residents' community is responsible for maintaining the shared garden and other collective spaces within the block, while the public areas surrounding the complex are maintained by the Municipality of Amsterdam. However, both the outer strip facing the water and the semi-private gallery zones on the upper floors are maintained by the residents of the adjacent dwellings, whereas the communal areas around the properties owned by the De Key housing corporation are maintained directly by that organisation.

Overall, the spatial configuration of Vrijburcht reflects the principles established for Steigereiland; a clear delineation between public and collective domains, combined with a fine-grained coexistence of different forms of ownership, access, and use. (Figure 4.25)

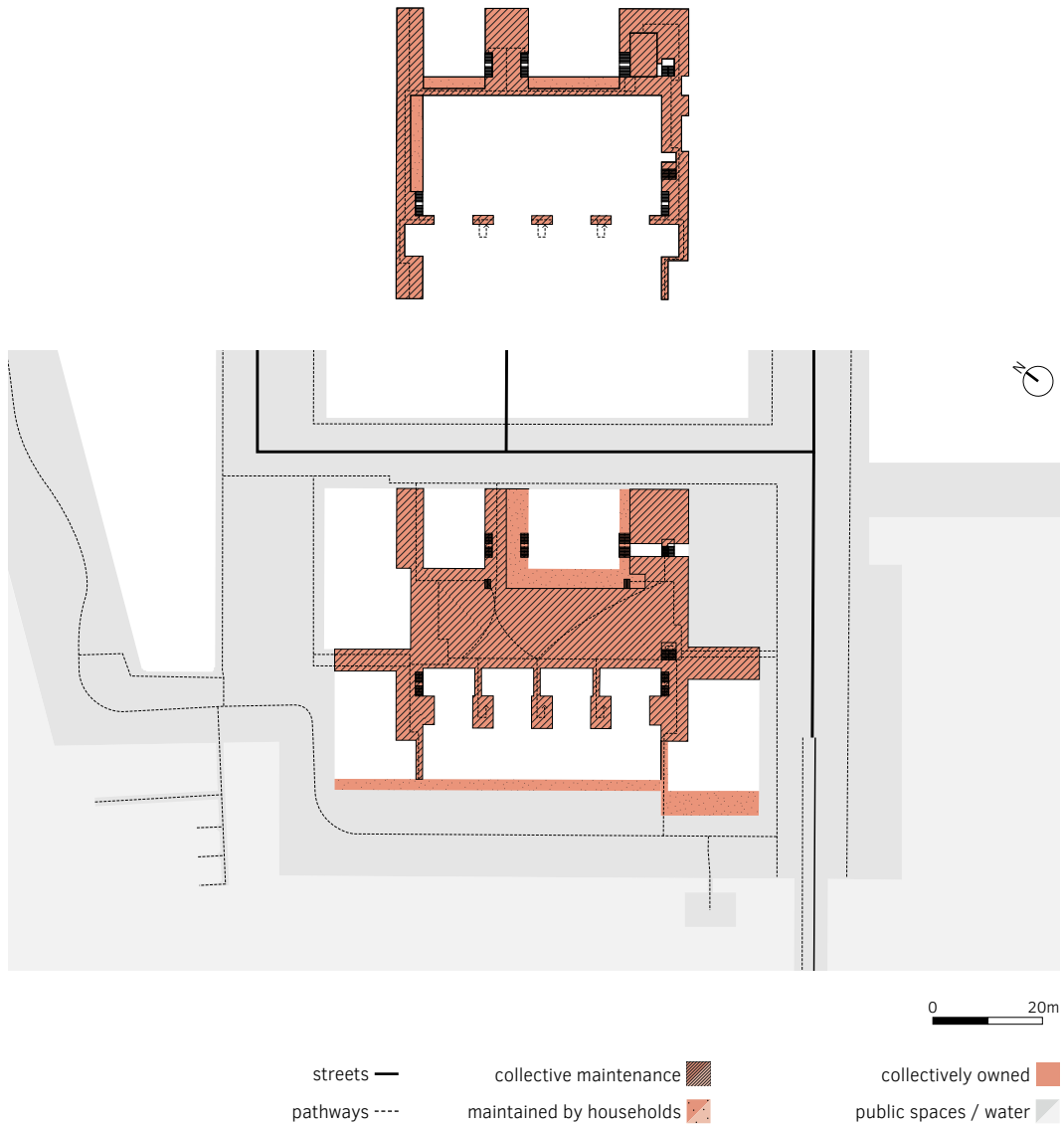


FIG. 4.25 Vrijburcht: distribution of ownership, use, and maintenance responsibilities across shared spaces — ground floor (bottom) and first floor (top)

4.2.2 Garden governance

Governance structure

The Vrijburcht complex was realised through a CPO process, which laid the foundation for its current governance structure. During the design and construction phase, the Vrijburcht Foundation, formed by future residents, acted as the client for architects, consultants, and contractors. The foundation oversaw planning, financing, and the sale of homes, and later transferred its responsibilities to the homeowners' association (VvE Vrijburcht) once the complex was completed in 2007. The VvE Vrijburcht is since then the main body responsible for decisions concerning the collective property, including the shared garden, and its internal statute defines collective ownership and maintenance responsibilities.

The residents constitute the core of the governance system. Most are owner-occupiers who participated in the initial commissioning process, maintaining a strong sense of responsibility for the collective environment. The housing corporation De Key is also a formal member of the VvE Vrijburcht, owning several dwellings and public-oriented facilities, including the café, theatre, day-care centre, and the care home for six youths with mild intellectual disabilities (De Roef). However, its role is limited to the management of its own properties, while decisions concerning the shared garden and other communal spaces remain under homeowners' control.

The office VLUGP, which designed the courtyard garden, maintains a direct connection to the complex: the office is located within the building, and one of its designers, Menno Vergunst, continues to live there, linking the project's design origins with its ongoing governance.

Garden maintenance of the inner planted areas is outsourced by the community to a professional company, at an overall cost of around €3,000 per month, covered collectively by residents in proportion to the size of their apartments. Other elements, such as the greenhouse, remain under residents' care. Although operating outside the community's governance structure, the professional gardening company plays an essential technical role in the long-term maintenance of the garden.

In addition to human actors, non-humans have also played an active role throughout the garden's conception, implementation, and management — notably the soil, rainwater, sunlight, plants, and the urban fauna. For instance, the compacted reclaimed soil influenced planting choices and required loosening during construction to enable tree growth. The rainwater system, designed in collaboration

with the architectural team, channels roof water into underground storage tanks used for irrigation. Over time, plants themselves have shaped the garden's development: some species failed to thrive under the local conditions, prompting collective decisions on replacement and adaptation.

Actors characterization

The actors involved in Vrijburcht form a small and interrelated group that operates primarily at the level of the complex itself. During the planning and implementation phase (TO), the future residents, represented by the Vrijburcht Foundation, acted as the main players, holding the greatest interest and power regarding the design of the shared garden. Another important player was the De Key housing corporation, which, although less involved in decisions concerning the garden design per se, participated in defining the other communal areas and in establishing the general management policies for the complex. The landscape architecture office VLUGP played a particularly significant role by bringing the technical expertise that translated residents' aspirations into the spatial and material configurations of the garden. In addition to producing the design, VLUGP also guided the residents in articulating their own ideas — coordinating the participatory process through surveys, a design workshop with a sand model, and excursions to other shared gardens in Amsterdam. The office therefore acted simultaneously as designer, facilitator, and interpreter of the residents' collective vision.

The Municipality of Amsterdam acted as a context setter, establishing the development parameters for the island and overseeing both project approvals and management plans. The architects from CASA also operated as context setters, since the architectural project — developed in parallel with the landscape design — exerted a decisive influence on the garden's configuration, just as the broader urban planning of IJburg did. Non-human context setters defined the initial environmental conditions that guided the development of the project, including soil, rainwater, sunlight and wind.

The small fauna from the surrounding water landscape were subjects, influencing design decisions such as the inclusion of birdhouses on façades facing the courtyard and the use of wooden elements to provide habitats for small animals. Plants were equally influential subjects, carefully selected to suit the conditions of the newly reclaimed island.

The contractors, by contrast, acted as the crowd, with limited power or interest in the shared garden and other communal areas.

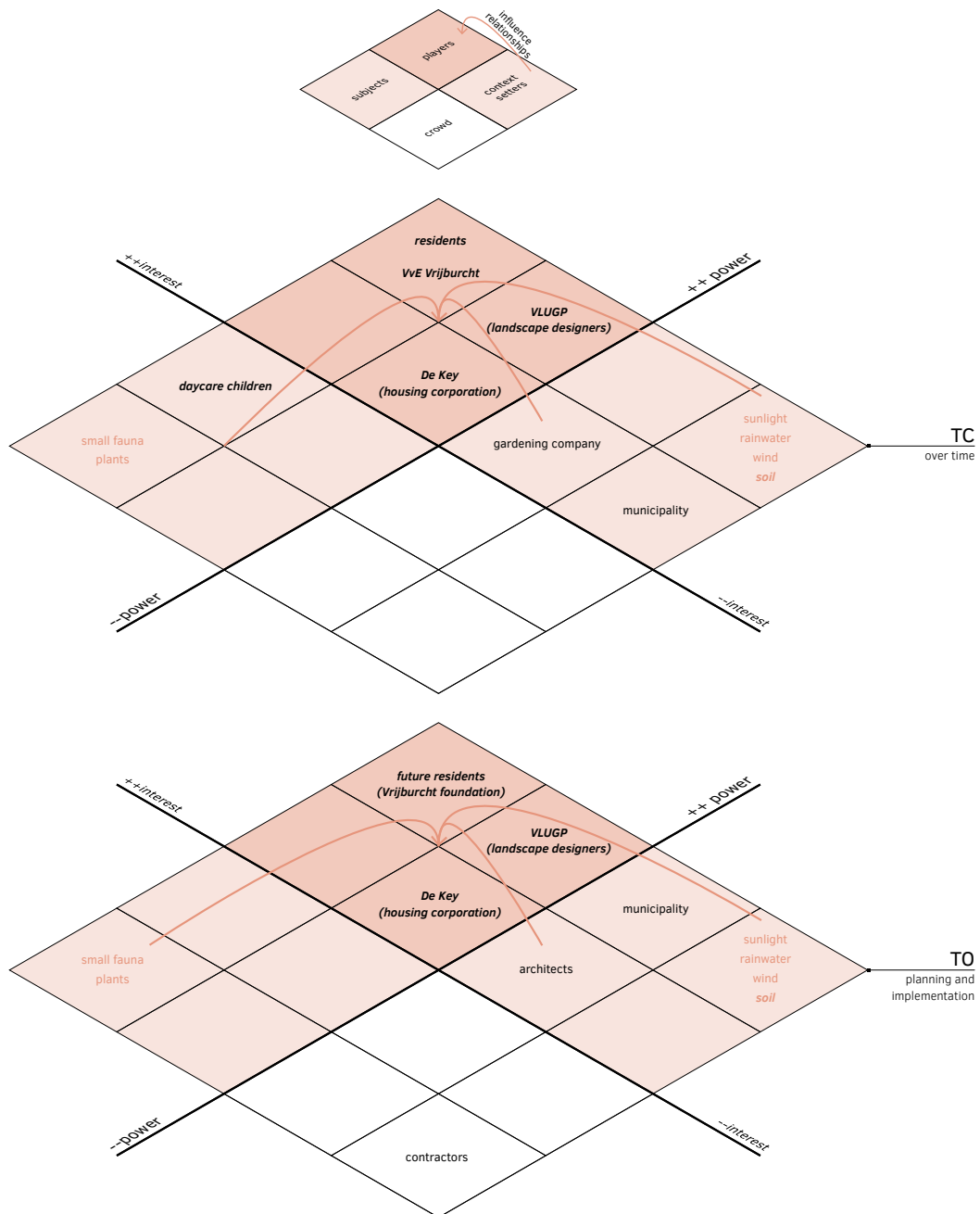


FIG. 4.26 Vrijburcht: actors' interest, power, and influence during the elaboration and implementation of the shared garden (TO) and in later years (TC). The grid situates human actors (black) and non-human actors (colour) operating at the level of the shared garden (in bold italics) in relation to those at other levels.

Over time (TC), the VvE Vrijburcht assumed the role of main player, alongside the residents — both homeowners and tenants of the De Roef care home. The De Key housing corporation remained an important player, still responsible for other collective areas under its ownership, which indirectly influence the use of the garden, even though it remains distant from garden-related decision-making. The designers from VLUGP continued as key players, actively involved in the garden's ongoing evolution and maintenance, using their technical expertise and on-site presence to respond rapidly to emerging needs, thereby maintaining a long-term professional and personal connection to the project.

The professional gardening company appears as a context setter; although it acts under the residents' direction and has little personal interest in the garden, it holds practical power by physically shaping its spatiality through regular maintenance. The Municipality of Amsterdam, though less influential than during TO, continues to operate as a context setter through its responsibility for maintaining the immediately adjacent public areas, including the quay that connects with the collective strip facing the water. Non-human context setters also remain active, setting the environmental conditions under which some plant species thrive while others struggle to grow.

Plants continue to function as subjects, requiring care, overgrowing, or failing under local conditions, thus triggering collective responses. The children from the day-care centre also emerge as subjects, as the way they use the garden has influenced not only the physical space but also the unwritten rules governing its use.

The power–interest–influence grid for Vrijburcht highlights a configuration characterised by a relatively stable and tightly interlinked group of actors, with professional expertise remaining influential over time. While residents consolidate their role through the VvE as the main locus of decision-making, designers continue to occupy a prominent position, extending their influence beyond the initial design phase into ongoing adaptation and maintenance. At the same time, non-human actors, particularly plants, animals, and children's use of the garden, introduce forms of negotiation that operate alongside formal governance structures. The grid thus illustrates a mode of transformation shaped by sustained professional involvement, strong organisational continuity, and the persistent influence of situated human and non-human practices. (Figure 4.26)

Procedural and informal interactions

The VvE Vrijburcht provides the formal framework for collective decisions regarding the shared garden and other communal spaces. The association holds annual meetings to discuss budgetary matters, maintenance, and collective decisions, including the outsourcing of garden care to a professional gardening company. According to the association's internal statute, major decisions — such as design alterations or interventions affecting the building's appearance — require at least 80 per cent agreement among members. Major topics are typically addressed during general meetings, while routine matters — such as minor maintenance or plant replacement — are managed through digital communication channels. This procedure applies to both planned and reactive interactions.

Informal interactions also play a vital role in the day-to-day management of the garden, as practical decisions often emerge through mutual understanding and unwritten norms. Residents frequently exchange information and coordinate small actions through messaging apps, ensuring responsiveness and flexibility that complement the formal structure. Examples include the shared use of the greenhouse, where residents cultivate and distribute herbs and vegetables through informal agreements. Occasional collective events — such as annual planting days or small gatherings in the courtyard — further strengthen social bonds and reinforce the sense of shared ownership. Minor issues — such as children's access to the garden and play areas — are typically resolved through discussion and compromise rather than formal voting.

The design and construction process already anticipated this blended mode of interaction. During the early design phase, residents took part in excursions, surveys, and workshops organised by the landscape architects, which established a shared understanding of the garden's atmosphere and intended use. This participatory groundwork reduced potential conflicts in later stages, as the community reached consensus on key design principles before moving in.

4.2.3 Garden design

This section is organised into two parts: the first provides a description of the shared garden, while the second examines its compositional forms (basic, programme, spatial, and image) across three stages: the original design plan (TO), the current condition (TC), and the recent redesign (TF).

Description

The design plan for the rectangular courtyard of 918 m² (51 × 18 m) proposed a subtly sculpted terrain with a small mound and a shallow valley, planted with grass, shrubs, and trees. The garden is crossed by a paved Y-shaped path, which divides the planted area into two parts of roughly one quarter and three quarters of the total length. The larger section is diagonally traversed by a dirt path, flanked by the mound on one side and the valley on the other, creating a gentle sense of movement. Originally, there were also several wooden benches along the dirt path, but these were gradually removed as the timber decayed. (Figure 4.27)

The original design defined the layout and composition of the planting areas but not all plant species. The final selections were made during implementation. Among the trees was a chestnut, which did not thrive due to compacted soil and was removed a few years after planting. A resident from the assisted-living unit De Roef asked for the trunk to remain in place, believing that the spirit of the tree would stay in the garden. The community agreed, valuing both the symbolic and aesthetic significance of the gesture. The final list of tree species included common plum (*Prunus domestica*), apple (*Malus domestica*), Judas tree (*Cercis siliquastrum*), giant dogwood (*Cornus controversa*), swamp oak (*Quercus palustris*), and birch (*Betula* sp.). In the first years after establishment, three additional trees were planted: a yellow dogwood (*Cornus mas*), a quince (*Cydonia oblonga*), and a serviceberry (*Amelanchier* spp.).

Chestnut wood fences support the growth of climbing hydrangeas. Other shrubs include lilac (*Syringa vulgaris*), butterfly bush (*Buddleja davidii*), and mock orange (*Philadelphus coronarius*). Along the rainwater drains, climbing plants such as honeysuckle (*Lonicera periclymenum*), Dutchman's pipe (*Aristolochia macrophylla*), akebia (*Akebia quinata*), and Chinese ivy (*Parthenocissus chinensis*) create a vegetated tunnel along the ground-floor corridor. On the internal facades, built-in birdhouses provide shelter for birds.



FIG. 4.27 Vrijburcht: impression of the garden in autumn 2023.

In the smaller section, there was originally a small circular vegetable garden, enclosed by low wooden stakes. It was introduced during implementation at the initiative of one resident, who advocated for a more productive use of the garden. While she was away on summer holiday, the residents became dissatisfied with the garden's neglected appearance. Upon her return, they collectively decided to remove the vegetable plot and replace it with flowers, which they found easier to maintain and more visually appealing.

The planted area is bordered mainly by a wood–plastic composite deck, which is periodically cleaned of moss that tends to make it slippery. To improve safety, a carpeted strip was added along the main circulation path. A wider section of the deck accommodates picnic tables.

There is also a paved section near the day-care centre, which is largely fenced off. Because of this fence, the garden cannot be fully circumnavigated at ground level. Adjacent to the day-care centre, a covered sandpit enclosed by glass panels serves as a playground. It is used by day-care children during school hours and by residents' children in the evenings and at weekends.

Both groups of children once played freely in the garden, often damaging plants. For a period, residents installed barrier tapes and posted a bullet-pointed list of best practices to educate children and parents on appropriate use of the garden. These measures proved temporary, as the garden's use gradually became informally regulated, with adults teaching newcomers and children how and when to use the space.

The garden is accessed through four locked doors, one on each side, as well as five staircases and two panoramic lifts leading to the upper levels. On the first floor, a greenhouse provides space for residents to grow herbs and vegetables, which they share informally via messaging apps. Whoever plants may harvest what they need and inform others to collect the rest.

The gallery on the first floor encircles the courtyard opening, allowing residents to walk at the height of the tree canopy and enjoy views of the garden below. The gallery is divided into a circulation area and seating zones used by adjacent dwellings. Along the façades, residents have added decorations and potted plants. On the uppermost floors, outdoor spaces are entirely private extensions of the adjoining homes.

On the outer side facing the water, several picnic tables and pieces of outdoor furniture are used by residents of the ground-floor dwellings. The upper floors have balconies overlooking the water. Climbing plants grow along the external façades, where soundproof cladding supports vegetation. These climbers serve both acoustic and aesthetic purposes, softening the building's appearance and reducing wind and noise from the nearby motorway.

Over time, the trees in the courtyard have grown, casting dense shade over the lawn. As a result, the grass has struggled to establish, raising concerns about both its appearance and upkeep. In addition, the combination of high maintenance costs and the limited everyday use of the garden, with most residents favouring the deck and picnic tables, has led to discussions about adapting the design.

Following a workshop with residents led by VLUGP, a revised design plan proposed several targeted changes. Three trees will be removed, including two birches and a serviceberry that is nearly dead. The lawn will be reduced and more clearly defined by new shrub borders, with a smaller, enclosed planting area added to the south-eastern corner of the garden. The diagonal dirt path will be replaced by an undulating semi-hard surface, slightly widened to incorporate a wavy wooden bench. Together, these adjustments aim to make the garden more usable for residents while reducing maintenance costs and preserving its collective character.

Compositional forms

The original design plan overlaps partly with the as-built situation, as the plant species were chosen during implementation and minor adjustments to the design were made throughout construction. The final result immediately after completion is considered TO. The TC situation corresponds to the condition observed in autumn 2023, while TF refers to the new design proposal developed during a workshop with residents in January 2023.

The basic form of the ground-floor garden follows an offset of the rectangular shape of the building. The paved path that crosses the planted area transversally is aligned with one of the main entrances of the complex — the one connected to the day-care centre. This configuration is repeated on the upper floor, where the open atrium extends over part of the garden and part of the deck. Also on the upper level, the alignment of the rainwater drains defines a clear separation between circulation zones and seating areas. This basic form remains consistent across all versions of the garden. (Figure 4.28)

Regarding the programme form, the planted area is primarily oriented towards sensory experience, while the surrounding zones are designed for social use. The ground-floor gardening area present in TO disappeared in the later versions, whereas the greenhouse gardening space remained in place. In TF, the proposed modifications aim to transform the central part of the garden into a more socially oriented space, featuring a usable lawn where children can play and a bench designed for small gatherings. (Figure 4.29)

Regarding the spatial form, the planted courtyard is generally open, with tree canopies forming a natural ceiling that complements the covered circulation zones. Between TO and TC, spatial change has occurred primarily through plant growth: the trees have matured, intensifying the sense of enclosure above while maintaining openness at ground level. In addition to the planting of three extra trees, the increased canopy cover has resulted in deeper shade across the central lawn, affecting its density and visual continuity. In TF, the design aims to reinforce this differentiation by keeping the central area more open, preserving the lawn as a clear space, while the south-eastern corner is intended to become more enclosed, with meandering pathways through taller shrubs in the valley area. On the upper floor, the combination of the gallery and the atrium offers views over the courtyard and reinforces visual connections between the collective interior and the private dwellings. This vertical layering of spaces remains a defining aspect of the garden's spatial form across all versions. (Figure 4.30)

Regarding the image form, the garden combines a natural character — expressed through its many trees, the vegetated tunnels along the corridors, the dirt path, and the wooden elements of the garden and deck — with a more industrial appearance, marked by the exposed rainwater pipes, metal railings, the glass greenhouse, and concrete birdhouses. The birches, the tallest trees in the courtyard, have a particularly strong presence and play a key role in defining the garden's atmosphere. The outdoor furniture, plant pots, and garden décor added along the galleries further reinforce the garden's informal and communal appearance. In the future, the removal of two birch trees, the creation of a small pocket square, and the definition of a smaller lawn area will slightly alter the garden's texture and composition while preserving its overall balance between natural and industrial aesthetics. (Figure 4.31)

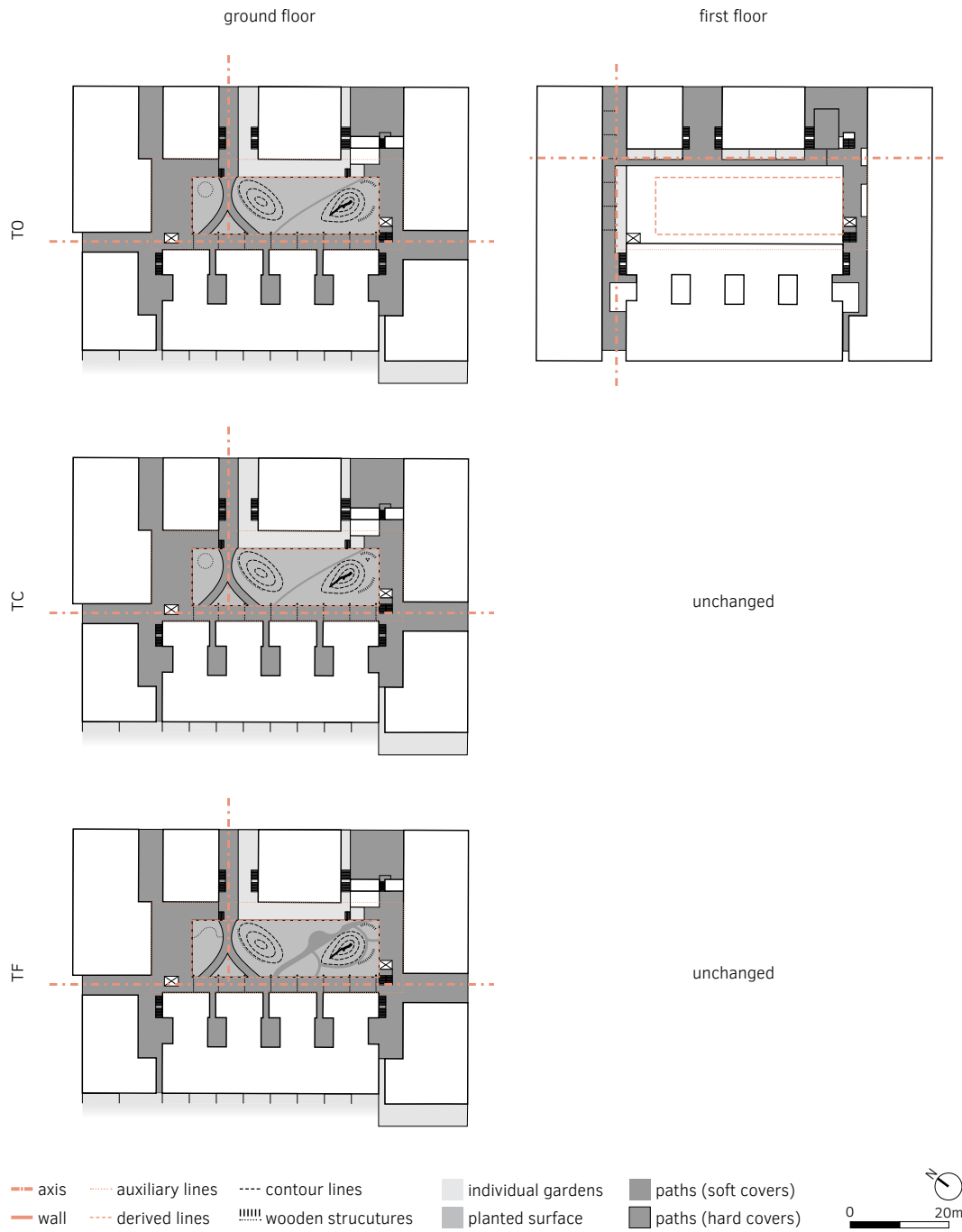


FIG. 4.28 Vrijburcht: basic forms over time.

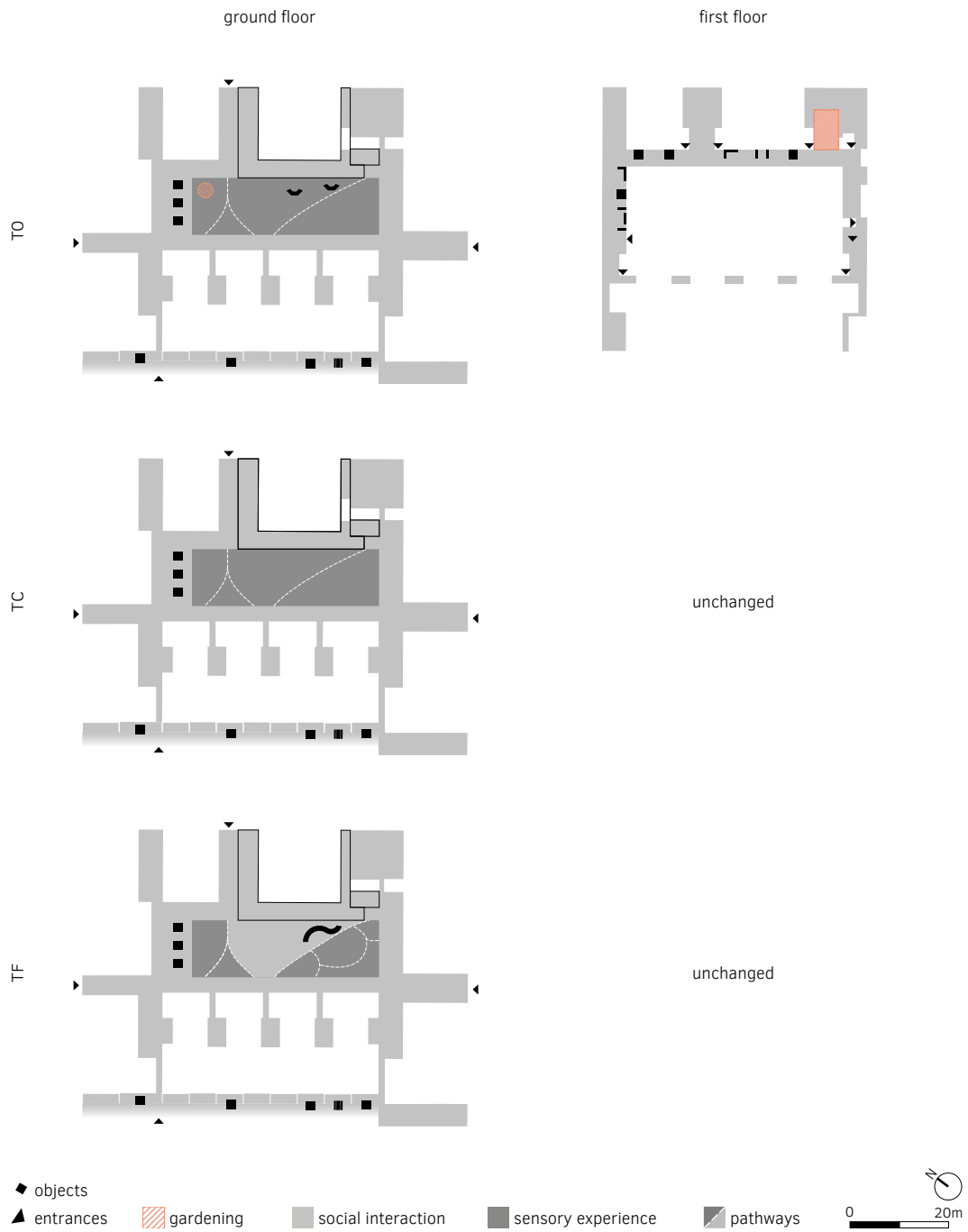


FIG. 4.29 Vrijburcht: programme forms over time.

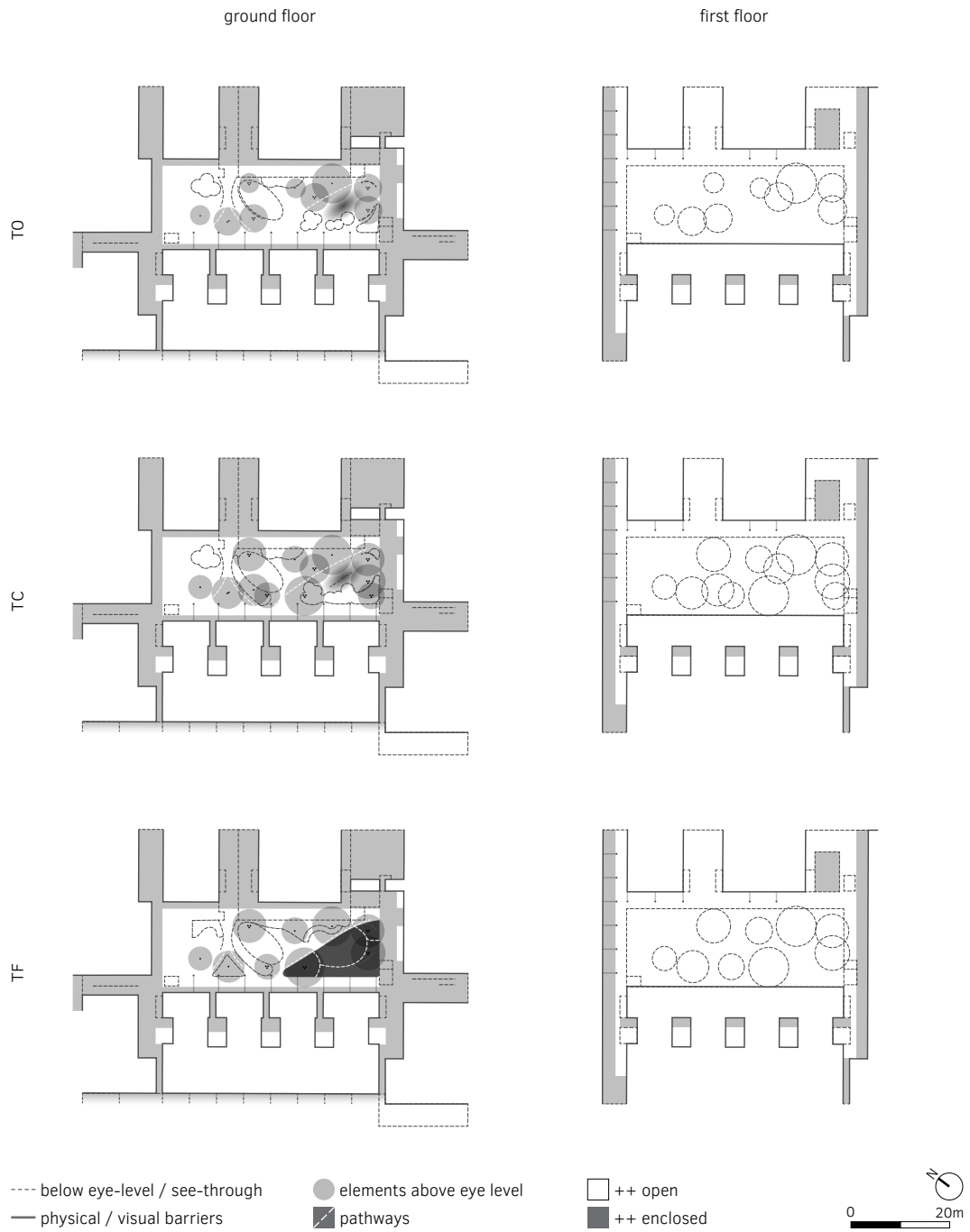


FIG. 4.30 Vrijburcht: spatial forms over time.

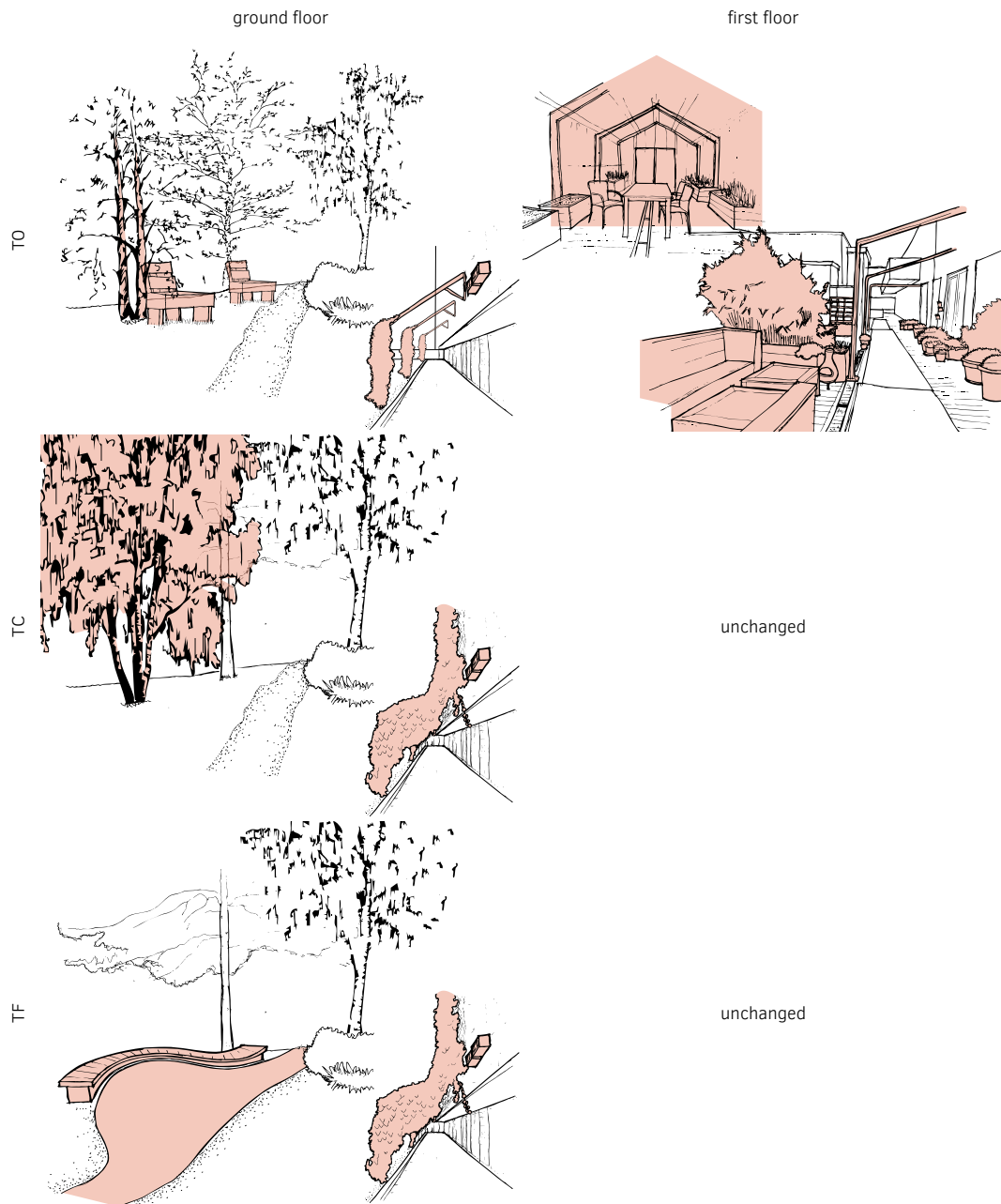


FIG. 4.31 Vrijburcht: image forms over time.

Participation in garden transformation

In Vrijburcht, the homeowners' association (VvE) centralises decision-making for the shared garden. Here, however, the designers stand out, as they also live in the complex and combine the roles of design conception and long-term management. The community outsources most gardening tasks, taking care only of the greenhouse and the individual terraces. Over time, children have influenced the redesign of the garden, together with considerations of maintenance costs, prompting small adaptations in layout and planting.

Non-human actors also play a significant role in garden transformation. Trees have been particularly influential: some have grown to the point of blocking sunlight, affecting the lawn's condition, while others have failed to thrive due to compacted soil. (Figure 4.32)

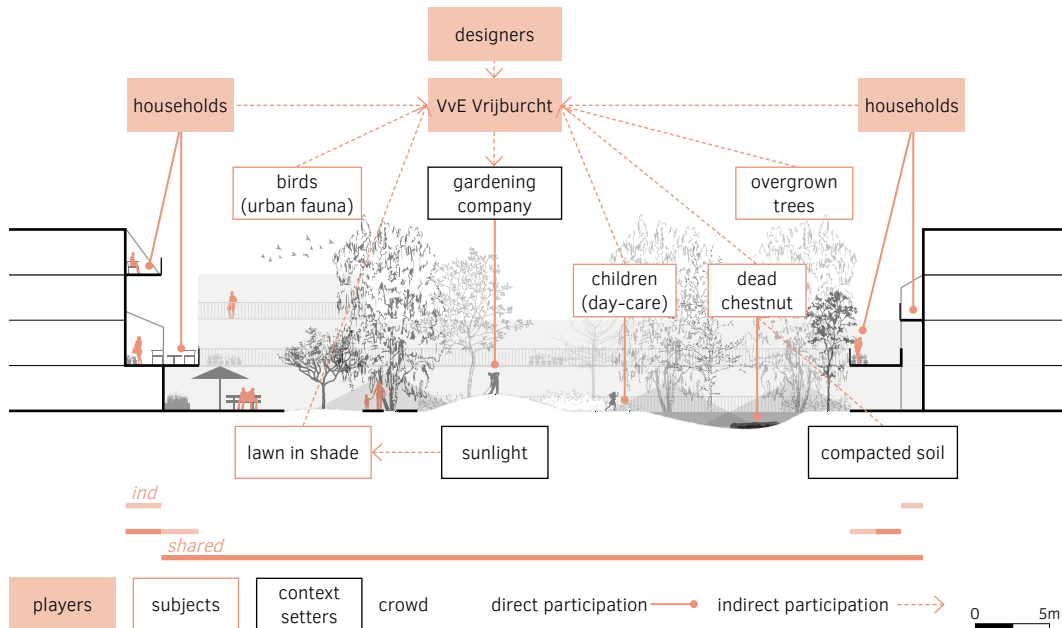


FIG. 4.32 Vrijburcht: participation in garden transformation and noteworthy interactions.

4.3 On transformation and continuity in Kersentuin and Vrijburcht

Both De Kersentuin and Vrijburcht have undergone transformation over time while maintaining a notable degree of continuity and fidelity to their original designs, a pattern also observed in most gardens in Lanxmeer. Yet, unlike Lanxmeer, where each courtyard garden is managed by its own resident group, the shared gardens in both De Kersentuin and Vrijburcht are governed by a single resident association that represents the entire community, although in De Kersentuin this structure operates under the supervision and partial support of the municipality. Across all three cases, however, the active participation of both human and non-human actors in shaping and transforming the gardens remains a common feature.

This section is organised into two parts. The first examines how change unfolded in De Kersentuin and Vrijburcht over time, looking at where the gardens changed, why they changed and who was involved, when and how the changes took place, and what changed in terms of compositional forms. It offers a cross-case comparison of transformation patterns across the two sites. The second part reflects on the main take-aways in response to sub-question 2, considering how the findings from De Kersentuin and Vrijburcht confirm, expand, or differ from those drawn from Lanxmeer.

4.3.1 Changes over the years

In both De Kersentuin and Vrijburcht, change has taken place gradually, reflecting the interplay between human decisions, material conditions, and ecological processes. While the scope and pace of transformation vary, both sites illustrate how shared gardens evolve through subtle yet cumulative adjustments. In this section, changes are again discussed in terms of a) where, b) when, c) who, d) why, e) how, and f) what.

A Where

In De Kersentuin, transformation is visible mainly through plant growth and the addition or modification of objects. New furniture, playground equipment, and decorative elements have been introduced across the gardens, while in the Kriekenbos the willow arches that once structured the paths are gradually being removed as the material decays. Their removal has not been followed by

replacement, as the maturing trees have taken over their role in defining space and enclosure. Several surface materials were also replaced: lava stones were substituted with grass-concrete blocks to prevent surface heating, and more recently parking areas underwent partial resurfacing to reduce persistent puddling. These changes are accompanied by small shifts in the overall layout, where residents favoured slightly curvilinear lines over the original rectilinear design, both as a matter of preference and to enhance privacy for the dwellings.

In Vrijburcht, changes to date have been relatively limited in terms of direct human interventions. These have mainly involved adjustments during implementation and small-scale modifications thereafter. During construction, minor changes were made to the perimeter of the deck and garden to accommodate the water collection system. A walnut tree that failed to establish was removed, and its trunk was retained as a symbolic feature, while three new trees were planted. Since completion, human involvement has primarily taken the form of routine plant maintenance, alongside the addition or removal of furniture and decorative elements. By contrast, the most significant spatial changes over time have been driven by non-human processes. As the trees in the courtyard matured, canopy cover increased substantially, leading to deeper shade and altering the environmental conditions of the garden. This transformation has had a pronounced effect on the central lawn, which has gradually deteriorated under reduced light conditions. Looking ahead, the planned redesign will introduce more substantial changes, including the removal of several trees, a reduction of the lawn area, an expansion of shrub planting, a redrawing of paths, the replacement of the dirt path with a semi-hard surface, and the addition of new furniture.

B When

In terms of timing, the two projects reveal different patterns of transformation. In De Kersentuin, change can be understood through two main phases: modifications introduced during implementation and transformations accumulated through long-term use. In De Kersentuin, the earliest changes took place during construction, when the layout was softened through curvilinear lines and new surface materials were introduced. Subsequent transformations unfolded gradually as vegetation matured and residents added furniture and decorative elements.

In Vrijburcht, transformation has occurred in three distinct phases. An initial phase involved minor design adjustments during implementation. This was followed by a longer period characterised by small incremental changes introduced by residents, alongside ongoing vegetation growth and material decay. The forthcoming redesign marks a third phase of planned, user-led transformation, in which anticipated maintenance costs and residents' intended use of the garden are explicitly balanced.

C **Who**

Regarding actors, in De Kersentuin, change is driven by the residents themselves, coordinated through the garden working group. Non-human actors play an equally active role: plants shape space through growth, urban fauna influence daily interactions, and contextual elements such as rainfall and soil contribute to ongoing negotiation — evident, for instance, in the decay of the willow arches and the water pooling in parking areas. In Vrijburcht, decision-making lies with the VvE, which represents all property owners, while residents also contribute through decoration and small personal additions. The designers, who are also residents, bridge design and management roles, guiding both the original and forthcoming projects. Children have likewise been influential, altering vegetation through play and prompting the reconfiguration of the lawn. Among the non-human actors, trees have grown to cast deep shade, limiting sunlight and weakening the grass, while the compacted soil set a context in which the chestnut could not establish.

D **Why**

In De Kersentuin, aesthetic preference guided the shift from rectilinear to curvilinear layouts and encouraged the addition of decorative elements. These adaptations also aimed to enhance privacy for ground-floor homes in semi-private areas, while providing a balance between spaces for play, areas for staying, and social gathering. Some changes were driven by biophysical processes, such as plant growth and material decay, while others reflected social–ecological ideals, including the creation of habitats for small animals.

In Vrijburcht, motivations combined symbolism, aesthetic choice, and practical considerations. The walnut trunk retained as an ornament carries symbolic meaning, while decorative additions express personal preferences. Financial concerns likewise played a role, as the redesign seeks to reduce maintenance costs and simplify upkeep. At the same time, the forthcoming plan aims to activate the garden more strongly as a social space, building on the potential of the sunnier lawn areas and introducing curvilinear seating elements that encourage lingering and shared use. By redefining the lawn and seating arrangements, the redesign seeks to minimise friction between users and plants while strengthening everyday social use of the garden.

E **How**

Changes occurred through both formal and informal interactions. In De Kersentuin, formal decisions were made through simple majority voting, guided by the landscape design plan. Informal interactions, such as the rearrangement of furniture or the

addition of decorations, often emerged spontaneously. Non-verbal processes such as plant growth and material decay also continued to shape space alongside human action. In Vrijburcht, major decisions require 80 per cent agreement within the VvE, again using the landscape plan as a reference. Smaller adjustments are discussed informally through messaging apps or everyday exchanges, including the distribution of herbs and vegetables from the greenhouse. As in De Kersentuin, non-verbal processes and small personal initiatives subtly influence Vrijburcht's ongoing transformation.

F **What**

Considering the compositional forms, in De Kersentuin the most substantial changes have occurred in the spatial and image forms. Vegetation growth and the decision not to establish rigid hedges in parking areas have softened boundaries, while the curvilinear lines and gradual development of the Kriekenbos pocket forest have altered the garden's overall image. The programme form has changed only slightly, mainly through the addition of playground elements and small adjustments in layout. The basic form has remained stable, preserving the original proportions and axes of the design.

In Vrijburcht, transformations are most evident in the spatial form, shaped by vegetation growth and the forthcoming redesign intended to enhance the contrast between open and enclosed areas. Changes in the programme form are expected to appear in the future with the introduction of new social spaces. The image form will also evolve, particularly with the planned removal of birches and the reduction of lawn areas. The basic form has remained unchanged.

4.3.2 **Comparative reflection**

In relation to those from Lanxmeer, the findings from De Kersentuin and Vrijburcht show the following patterns.

- In Lanxmeer, most changes involved plants, objects, and functional–spatial configurations. The same applies to De Kersentuin and Vrijburcht, although in these cases changes were less frequent in the planting scheme itself and more a matter of adaptation to vegetation growth and decay. In both gardens, functional and spatial changes were generally punctual and incremental, while in Vrijburcht most planned transformations are intended for the future and have not yet been realised at the time of the research.

- Across the three cases, transition zones between private and shared areas are constant sites of negotiation. These spaces tend to evolve according to the preferences of adjacent households, whether through complete reconfiguration, joint decisions on features such as hedge height, or the addition of personal decorative elements. In design terms, these zones range from clearly defined edges with fixed elements, through planted or spatial buffer zones, to deliberately open or loosely specified interfaces, which do not determine outcomes but shape the scope and intensity of subsequent negotiation. Rather than performing better or worse *per se*, different design approaches to these transition zones enable different governance dynamics and spatial outcomes.
- Across all three cases, most modifications took place during the implementation phase and the first years of adaptation, followed by longer periods of stability. In Lanxmeer and Vrijburcht, more significant changes emerged around 15 years after implementation, when the gardens entered new phases of reflection and renewal. In addition, small incremental changes occurred regularly or sporadically over the years, and in some cases it was not possible to identify a specific timeframe for these transformations.
- Across the cases, residents emerge as strong agents of change, alongside non-human actors. Both owner-occupiers and renters are involved, although their degree of participation varies depending on specific community arrangements and governance structures. Residents' actions are often facilitated by garden committees that coordinate rather than decide. Non-human actors participate actively: plants, fungi, and microorganisms reshape space through growth and decay; urban fauna influence local practices; and non-human context setters such as sunlight, soil, and rainfall impose constraints that, when unmet, prompt further adjustments.
- While participation in Lanxmeer varies according to several factors, engagement in De Kersentuin and Vrijburcht has remained relatively stable, each in its own way. In De Kersentuin, the large number of residents sharing the same garden ensures sufficient engagement to govern and maintain each section. The diversity of resident profiles also contributes to keeping the space lively and well cared for, while centralised coordination and a clearly defined governance model, established from the outset, simplify decision-making. In Vrijburcht, the community is highly cohesive, having established many aspects of its governance early on that remain in practice to this day, many of which embrace informal interaction. However, resident participation in transforming the garden is low, as evidenced by the outsourcing of gardening and the limited use of the vegetated area.

- These differences in participation and management arrangements are also reflected in maintenance costs. While maintenance costs varied across cases, they generally reflected a combination of garden size, intensity of use, and the balance between volunteer labour and outsourced work. The figures observed suggest that shared residential gardens operate with relatively modest annual budgets, particularly where residents contribute time and labour. These budgets are sometimes complemented by municipal support for more demanding or safety-related tasks.
- In both De Kersentuin and Vrijburcht, residents described the garden as a place of passage and, consequently, of encounters. They feel a strong connection to it because the garden is an inevitable part of their daily lives — a space they must cross to reach their homes and one that remains constantly in view from their windows. This is also the case, to some extent, in many of the gardens in Lanxmeer.
- In Lanxmeer, many changes were motivated by social and leisure needs, aesthetic preferences, and ecological concerns. In De Kersentuin, human-led changes were mainly aesthetic or functional, such as seeking privacy, creating opportunities for play and social interaction, or responding to ecological ideals like habitat creation. In Vrijburcht, current modifications follow a similar pattern, including the addition of carpet for safety and the decoration of galleries. Future changes, however, are more explicitly linked to social and practical goals, such as rethinking garden use and reducing maintenance costs.
- Across all cases, the life cycles of plants and materials are key triggers for transformation, including vegetation growth and decay, and material wear and tear. Adaptation to new life phases, which was relevant in Lanxmeer, appears less significant in De Kersentuin and Vrijburcht. This likely relates to differences in community structure: in De Kersentuin, around half of the households have changed over time, introducing new families and children; in Vrijburcht, almost no turnover has occurred, and the original residents have maintained a coherent vision of the garden. Moreover, there has always been a number of children in the complex because of the presence of the daycare centre.
- The overlapping of motivations for change, typical in Lanxmeer, is also evident in Vrijburcht, where it has led to a planned redesign. However, this pattern is less apparent in De Kersentuin, where spaces are regularly monitored by both the garden committee and the municipality, with the latter focusing particularly on safety issues.
- In all three cases, change arises through a combination of procedural and informal interactions. Substantial transformations result from procedural decision-making, whereas everyday adjustments stem from informal or non-verbal actions, often

shaped by biophysical processes. In both De Kersentuin and Vrijburcht, the community previously agreed to embrace a certain degree of informality in some aspects, especially regarding the decoration of shared areas through individual initiative.

- In all three cases, transformation mainly affected the image, spatial, and programme forms, while the basic form remained intact. In Lanxmeer, rebalancing between open and enclosed spaces — and between areas for social interaction and sensory experience — was a key driver of change. A similar pattern appears in Vrijburcht, where the planned redesign aims to sharpen these contrasts. In De Kersentuin, this balance has been maintained over time through intentional maintenance practices.

Across De Kersentuin and Vrijburcht, transformation emerges as a continuous negotiation between design intention, collective management, and everyday life. Both cases show how design frameworks and governance structures can sustain long-term continuity while allowing for small, cumulative adaptations shaped by residents and non-human forces alike. When compared with Lanxmeer, they reveal that transformation in shared residential gardens is not necessarily linked to formal redesign or major interventions, but often to subtle shifts embedded in maintenance, everyday use, and ecological growth. Together, the three cases illustrate that continuity and change are not opposing conditions but parallel processes through which residential green commons remain coherent and adaptive over time.

Cultivating change

Part II builds on the empirical analyses developed in Part I, shifting the focus from description and analysis to synthesis and proposition. It brings together patterns of transformation observed across the cases and translates them into analytical concepts, interpretative distinctions, and design- and governance-relevant principles. Methodologically, this part takes the form of a reflective synthesis, in which concepts, conclusions, and recommendations are developed inductively from the ethnographic-based investigation. Design and governance are approached as capacities that can support the long-term evolution of shared residential gardens under conditions of uncertainty and change.

5 Design principles for shared residential gardens

This chapter examines how design can work alongside governance to support the evolution of shared residential gardens by cultivating change. Here, cultivating change refers to supporting transformations that help gardens remain meaningful and workable over time, while limiting disruptive modifications arising from misfit between design, use, governance and ecological development.

Methodologically, the chapter functions as an analytical synthesis, translating ethnographic findings into concepts and principles for design and governance.

The chapter begins by reflecting on the empirical findings from Chapters 3 and 4, identifying patterns of transformation and examining how they relate to the reciprocal interaction between design, governance, and human and non-human actors (Section 5.1). It then discusses the implications of these patterns for practice, outlining the capacities required of garden design and community governance to support garden evolution collaboratively (Section 5.2).

Building on this, the chapter explains how a set of design principles was derived. Drawing on the insights from Sections 5.1 and 5.2, five foundational guidelines were developed to express how design and governance can work together in supporting long-term evolution. These guidelines were subsequently explored in a design workshop and refined in a focus group with residents, offering complementary perspectives on their generative potential and practical relevance (Section 5.3).

The chapter then presents the design principles under each guideline, showing how they respond to spatial, programmatic, image, ecological and social considerations through the continuous interplay of design intentions, everyday care and governance (Section 5.4). It concludes by reflecting on their potential and limitations, considering how they can inform practice without overstating the degree to which long-term transformation can be anticipated or steered (Section 5.5).

5.1 Patterns of transformation

This section builds on the findings presented in Chapters 3 and 4, examining the multiple facets of landscape transformation in shared residential gardens through the lens of the reciprocal interaction between design and governance. In doing so, it responds directly to research sub-question 2 [*What compositional changes, along with their drivers, processes, and temporal–spatial characteristics, underpin the evolution of shared residential gardens over time?*]. The discussion is organised into five thematic groups that describe how transformation unfolds: objects of transformation, temporalities of transformation, agents of transformation, drivers of transformation, and settings of transformation. Together, they show that transformation occurs through three broad orders: natural development, adaptation, and user-led redesign. These thematic groups and orders of transformation emerged inductively from the comparative analysis of practices, negotiations, and temporal dynamics across the cases. They are introduced as interpretative tools to synthesise empirical patterns.

5.1.1 Objects of transformation

Plants

Plants are not only the most extensively used material in garden design but also the one that most actively transforms the garden through its own development. As vegetation changes in structure and volume, it reshapes openness and enclosure, modifies view lines, affects light and shade, and influences the overall character of the garden – for instance, whether it is perceived as orderly, unruly.

The gardener responds to plant development by pruning, trimming, or selectively removing vegetation to adjust light conditions, improve accessibility, accommodate aesthetic preferences, or create space for other plants to establish. Sometimes, everyday use culminates in subtle changes, such as informal paths formed through trampling, or plants being redirected or broken as people navigate through dense corners of the garden.

At another level, the gardener also replaces or removes species that have declined, become overly dominant, or no longer align with residents' expectations. New species are likewise introduced for various reasons, including aesthetic or ecological considerations.

The designer brings specialised knowledge regarding species selection, suitability to the landscape context and site-specific conditions, growth habits, and long-term compositional development. This enables the initial planting scheme to anticipate, to some extent, changes in structure, layering, and materiality over time. In this sense, design continues to influence the emerging spatiality of the garden well beyond the moment of implementation.

However, once the garden is inhabited, human and non-human agency intersect, and the initial planting scheme inevitably changes through the interactions between plants and the gardener, with the community itself acting as a collective gardener within the shared landscape. While the designer establishes the initial framework, vegetation continues to evolve through ecological processes and ongoing communal gardening. These reciprocal interactions often extend beyond the anticipated trajectory of the original design, yet they also create opportunities for its intended spatial structure to be reinforced over time through collective stewardship.

Increments

Residents often enhance the garden through the addition of decorations, furniture, and objects such as play or sports equipment. In doing so, they may create new spaces by subdividing or integrating existing ones. The inverse also occurs, with objects being introduced specifically to generate new spaces. This tendency is closely linked to the alignment of the garden with residents' wishes and needs. When objects or spatial arrangements do not meet these expectations, the community adapts or modifies them to better suit collective preferences. Decorating the garden is also a common form of personal expression within domestic environments, and this naturally extends to the shared garden. It represents a positive mode of appropriation that fosters identification with the place and reinforces a sense of belonging.

Both the design and the governance of the garden must allow room for these forms of adaptation if the shared garden is to remain meaningful and relevant. The ability of residents to increment the garden is central to its ongoing use and social life, and should therefore be accommodated within the compositional and organisational framework.

However, when incremental adjustments evolve into substantial redefinitions of the garden's composition, they indicate a shortcoming in the design's capacity to support the community's changing wishes and needs. This tendency can, to some extent, be mitigated when the original design provides spaces that are flexible, easily adaptable, or already incorporate a degree of spatial and programmatic diversity.

Transitions

Spaces directly adjacent to individual domains — such as private gardens or the dwellings themselves — are highly susceptible to transformation over time, as residents continuously adapt them to their wishes and needs. This applies not only to elements such as hedges and fences but also to the interfaces between housing units and shared spaces, including façade gardens. These areas also change through biophysical processes, especially where vegetation establishes spontaneously, matures or declines, and where materials weather differently depending on exposure. Such processes contribute to gradual shifts in enclosure, permeability and spatial legibility along these edges.

As a result, these zones tend to acquire a heterogeneous appearance. Design can engage with this heterogeneity by anticipating ecological and material change, shaping planting or boundary elements to mature in ways that stabilise spatial relations over time, or by clearly demarcating the extent to which areas may be individually modified and where collective maintenance begins. In this way, design can influence and facilitate the governance of transition zones, supporting the establishment of management policies. Designers should also alert the client community to these potential challenges and ensure that the implications of such boundaries are clearly discussed during the design process.

The governing community needs to establish clear rules for managing these zones in accordance with the desired collective outcome. These may range from strictly preventing any individual modifications not previously agreed upon and centralising the maintenance of such areas, to allowing residents of adjacent dwellings full autonomy to transform them. Conflicts can be avoided by clarifying responsibilities and expectations in this regard from the outset.

5.1.2 **Temporalities of transformation**

The three temporalities identified here emerge from the studied gardens and reflect their current lifespans. They are therefore not presented as universal stages but as empirically grounded patterns that may shift as these gardens, or others beyond them, continue to age and evolve.

Implementation

Gardens typically undergo a series of adjustments during the first five years of implementation. These arise partly because the designer's vision takes time to materialise, and partly because the design on paper must respond to real-site conditions that demand adaptation. For instance, as the garden begins to take shape, some plants may behave differently from what was anticipated, struggling to establish under the specific conditions of light, wind, or soil moisture. Such situations often prompt early adjustments to the intended composition.

Phased implementation can be anticipated within the design plan itself, allowing the designer's vision to accommodate the garden's initial stages of development, including these early ecological dynamics. An implementation manual may accompany the design to guide its realisation, and when feasible, the designer's availability during this period can greatly assist decision-making in response to emerging issues such as plant mortality, unexpected growth patterns, or weather-induced adjustments.

Implementation is often carried out by the community itself. According to their capacities and available resources, residents realise the design over the first few years, adjusting it to both practical realities and expectations. At the same time, the non-humans are also settling into the garden environment, establishing roots, shaping local ecologies, and influencing emerging microclimates. This period also provides an opportunity for the group to establish governance practices from the outset — clarifying responsibilities, aligning maintenance requirements with community resources, and defining procedures for long-term care and management.

Quiet evolution

The decade following implementation is generally perceived as a period of limited user-led modification, yet it is far from static. As residents inhabit and use the garden — subtly altering the space through everyday practices — non-human agents continue to evolve, quietly negotiating their space and demands within the environment.

Plants mature, sometimes realising the designer's vision, at other times conflicting with residents' expectations. Fungi and microorganisms thrive in areas of humidity, decomposing wooden elements and reshaping material conditions. Such processes of growth and decay are natural, expected, and integral to the garden's life cycle.

Part of the work carried out during this period consists of maintenance typical of built environments, such as replacing deteriorated elements or repairing components affected by wear and weather. At the same time, transformation also stems from the garden's living nature: plants grow, decline, and die, and these cycles of emergence and loss are intrinsic to the garden's ongoing evolution. Attending to these dynamics — whether by replacing dead plants, removing them to allow space for others to establish, managing excessive growth, or supporting regeneration — therefore forms a continuous and anticipated aspect of garden care rather than a moment of renewal.

From the designer's perspective, this period requires anticipating, as far as possible, the behaviour of plant species that are essential to the garden's spatial and material composition. Design decisions made at this stage shape how growth, decay, and maintenance will interact over time, and how much adjustment will later be required.

The decade following implementation is also a period of consolidation in gardening and governance practices. Over the years, residents begin to trust one another and the policies in place, to the extent that some procedures may even be abandoned. Initial frictions usually diminish, and shared life gradually becomes routine. This routinisation is reflected in gardening itself, as the community gains confidence through continuous learning from practice.

Renewal

After around 15 years, gardens tend to undergo more substantial modifications, not only in response to new community needs — often shaped by shifts in the composition or demographics of the group — but also as a result of accumulated ecological development and material ageing. By this point, plants may have outgrown their intended proportions, overshadowed paths, or altered spatial relations; wooden elements may have decayed; and paving or edging may have shifted due to soil movement and prolonged weather exposure.

These conditions often prompt interventions that go beyond routine maintenance. In such cases, renewal involves the deliberate reconfiguration of parts of the garden in response to developments that no longer align with residents' expectations or everyday use.

From a design perspective, incorporating spatial, sensory, and programmatic diversity can help reduce the need for extensive renewal driven by emerging requirements. Equally important is sustaining this diversity over time, for instance by anticipating long-term plant development or by designing boundary elements that can withstand vegetation growth and material ageing without requiring renewal. Certain future functional adaptations may also be anticipated through design, although ecological processes will inevitably influence the pace and direction of spatial change.

Renewal typically requires coordination within the community. Residents often carry out these interventions independently, supported by years of accumulated experience gained through continuous interaction with the garden and its ecological processes. As a result, renewal decisions tend to balance user-led intentions, non-human developments, and the material realities of ageing garden components. While designers are rarely consulted at this stage, the extent to which their original framework can accommodate renewal depends on how effectively long-term social, ecological, and material trajectories were anticipated in the initial design.

5.1.3 **Agents of transformation**

Human residents

Many changes are carried out, coordinated, or supervised by residents. Gardening itself is an ongoing interaction between the community and the garden's components: residents respond to the agency of plants and other biotic and abiotic non-human elements, adjusting their actions to growth, decline, and seasonal dynamics. At the same time, everyday use also leaves its own marks, as movements, routines, and informal practices gradually reshape the physical environment.

Design ultimately depends on the community's resources, skills, and willingness — not only for implementation and maintenance but also for ensuring that the garden remains relevant to the group over time. This dependency should therefore be acknowledged during the design conception.

From the governance side, there is a clear need for effective coordination and well-defined policies governing how residents interact with the garden's physical space.

Non-residents

Changes in the garden also originate from the influence of external actors such as the municipality, the water board, visitors, and passers-by. These non-resident humans generally prompt the community to make reactive decisions that have spatial or material consequences in the garden. Such influences often take the form of requests, regulations, complaints, or informal pressures that require the group to adjust its practices or spatial arrangements. Although these interventions are uncertain and frequently unanticipated, they also constitute forms of adaptation that become part of the garden's ongoing transformation.

A range of professionals also exert a significant influence on both the physical configuration of the gardens and the governance practices of the communities. These include landscape designers, architects, process facilitators, consultants, and professional gardeners. With the exception of gardeners, whose involvement can be recurrent or ongoing depending on the case, most professionals participate only at specific moments, such as during planning and implementation phases or at key points of decision-making over time. Despite this often limited temporal presence, their influence extends well beyond their direct involvement. Architectural layouts continue to shape the spatial conditions of the gardens, while early design decisions and facilitation processes frequently lay the foundations for governance practices that guide collective action over extended periods.

Non-humans

In garden design, vegetation constitutes the primary material, and its development must therefore be anticipated as an active component of the design process. Through growth, competition, and decay, plants gradually reshape the garden's spatial and material composition. Alongside plants, other biotic agents such as fungi, microorganisms, mosses, and algae also participate in these transformations by decomposing organic material, altering soil and surface conditions, and affecting the durability of objects and structures. From a governance perspective, these biotic processes interact with the community's own actions, which in turn prunes, guides, adapts, and responds to the ecological dynamics unfolding in the garden.

Sunlight, rainfall, soil, wind, and other abiotic non-humans define the conditions for a garden's development. Acting mostly in combination, these agents exert considerable influence and therefore form the foundation upon which design decisions are made. Their dynamics shape environmental concerns that must be considered early in the process, such as exposure to heat, moisture retention,

shading patterns, drainage, and the long-term implications of soil quality and compaction. These concerns directly affect plant viability, habitat provision, and the everyday experience of the garden.

While design must respond to the actions of these non-human context setters, governance must also account for their effects. This includes ensuring that design decisions made in response to such landscape conditions are discussed, shaped, and understood collectively, and that maintenance practices continue to respect these shared decisions over time. It also requires acknowledging that environmental factors may change, prompting collective discussion about adjustments in planting, water management, and the use of space.

Urban fauna

Urban fauna appeared more often as influencers of change, rather than as direct initiators of transformation, shaping outcomes through their effects on maintenance and spatial decisions. Their presence prompted residents to adjust the gardens to provide shelter and food, whether by adding nesting structures, altering planting schemes, or creating calmer microhabitats. Although ecological awareness had already gained visibility through movements such as permaculture and sustainability at the time most of these gardens were established two decades ago, attention to biotic non-humans has increased since then. This shows how shifts in societal values and environmental consciousness become materially expressed through design alterations over time.

From a design perspective, considerations for urban fauna can be integrated during the planning process, especially when discussed with the community. Designers hold expertise on habitat requirements of local species and can communicate how spatial composition, vegetation choices, and material selection support these habitats.

From a governance standpoint, concerns about urban fauna represent gradual and emerging priorities that need to be accommodated within governance arrangements. This requires space for discussion, collective decision-making, and evolving practices that acknowledge the role of non-human species within the garden. It also offers a way to recognise, even if modestly, the principles associated with the rights of nature within everyday governance.

The creation and persistence of habitats, however, depend not only on design intentions but also on how gardens are maintained over time. Maintenance practices can strengthen, alter, or undermine habitat conditions by affecting vegetation density, structural diversity, and the availability of food or shelter. For this reason,

design and governance need to work together to align maintenance practices with habitat considerations, ensuring that such opportunities remain integrated into the garden's long-term evolution.

5.1.4 Drivers of transformation

Use, experience, and meaning

Transformations often arise from the ways residents use and experience the garden, and from the meanings they attribute to it. As everyday practices evolve, so do the expectations associated with leisure, play, gathering, and personal expression. Changes driven by these factors are not only natural but also contribute to the garden's ability to remain relevant to the community over time.

Many user-led modifications emerge from the desire to enhance opportunities for leisure and social interaction, whether by creating spaces for children to play, improving areas for relaxation, or adapting certain corners for communal activities. Such adjustments reflect evolving needs rather than flaws in the design. When the original composition offers a diversity of spaces for different age groups and types of activity, it tends to reduce alterations prompted by dissatisfaction or functional misfits, while still allowing room for changes that accompany shifts in everyday life. Governance arrangements must therefore remain flexible, supporting collective discussion and decision-making as new needs arise.

Residents also modify the garden in response to aesthetic preferences and evolving symbolic attachments. These changes often express attempts to root the garden more deeply in personal and collective identity, adding layers of meaning that cannot be produced by design alone. The role of design, in this sense, is not to impose or prescribe meaning but to create conditions in which residents can develop it over time, through care, use, and imagination. Elements introduced independently by the community — such as materials, ornaments, or cherished symbols — may deepen the cultural presence and contribute to sense of place.

These dynamics highlight the importance of allowing for diversity in spatial form, programme, and material expression. They also call for a governance model that accommodates evolving values and preferences, recognising that transformations driven by changing uses, experiences, and meanings are not disruptions but part of the ongoing life of the garden.

Resource capacity

Communities are often unable to sustain gardens that demand intensive maintenance, substantial labour, or high financial costs. At the same time, residents frequently value the act of gardening — not only trimming and pruning, but also cultivating, experimenting, and tending — and may modify designs that limit opportunities for hands-on engagement. The design of shared residential gardens must therefore balance these tendencies, aligning maintenance requirements with residents' capacity and willingness to participate.

From a governance perspective, maintenance must be viable not only financially but also in terms of available human resources. Communities encompass diverse skills, interests, and levels of commitment to gardening, and attempts to align these differences may produce friction without necessarily achieving resolution. It is therefore important to acknowledge and respect this heterogeneity, developing management practices that accommodate varying capacities while keeping the garden functional and meaningful for the group.

Life cycles of biotic and abiotic components

The garden's biotic and abiotic components follow their own life cycles, driving transformation in ways that are continuous and unavoidable. Biotic components, which make up much of the garden, evolve through growth, maturation, decline, and regeneration, producing spatial and material shifts over time. Abiotic components also age: wooden structures weather and decay; metals corrode; paving shifts with soil movement; and materials accumulate traces of water, wind, temperature, and everyday use. These processes influence durability, safety, and appearance, at times enriching the garden's character and at other times prompting intervention.

Together, the life cycles of biotic and abiotic components generate overlapping pressures for transformation, producing gradual shifts as living and material elements evolve. These processes form a dynamic backdrop against which residents negotiate their own actions, shaping the garden in response to both ecological development and material conditions.

Household life cycles

Household composition also changes over time, and these shifts frequently motivate transformation in the garden. When gardens are first established, many families have young children, resulting in an abundance of spaces oriented toward play. In small communities with little turnover, children eventually grow up and the resident group ages, culminating in a garden that no longer reflects everyday life. When this occurs, transformation becomes an opportunity to revitalise the space in line with current needs.

Design can respond to these temporalities not by prescribing specific future functions, nor merely by providing flexible or multifunctional spaces, but by establishing a spatial framework capable of accommodating change over time. This may involve anticipating that certain areas can shift from child-oriented to adult-oriented uses, allowing functions to evolve without disrupting the underlying structure.

Governance must also make room for collective reflection on emerging needs, maintaining a culture in which shifts in routines, demographics, and expectations can be openly discussed and translated into decisions about space.

Overlapping motivations

Motivations for change in the garden rarely arise from a single cause. In many cases, they emerge from the overlap of different pressures that accumulate over time — subtle shifts in use, evolving preferences, material ageing, plant growth, and changes in household composition. While each of these factors may appear minor on its own, together they can create situations in which transformation becomes desirable or necessary.

These overlapping motivations often reflect the intersection of distinct life cycles. For example, as children grow up, areas once dedicated to play may no longer match everyday routines at the same time that materials in those spaces have begun to deteriorate or surrounding vegetation has altered light and openness. In other cases, maturing plants may shift spatial structure just as households develop new preferences or activities, prompting reinterpretations of spaces that previously served different purposes.

Although waiting for motivations to accumulate is common, it can result in periods during which the garden no longer corresponds well to residents' routines or expectations. This risk can be reduced when design acknowledges that such overlapping motivations will emerge and provides a spatial framework capable of gradual reinterpretation. Governance also plays a role by creating regular

opportunities for collective reflection, enabling emerging needs to be recognised and addressed in a timely manner. Together, these practices help keep the garden aligned with the community as its circumstances evolve.

5.1.5 **Settings of transformation**

Governing community

Transformation is most effectively supported when a clear governance model is established from the outset — one in which resources, interests, responsibilities, and norms for decision-making are well articulated. A coherent governance framework creates the organisational conditions through which transformation can be negotiated over time, aligning practices of care with the changing needs of the community.

This involves clarifying expectations regarding roles and tasks, establishing maintenance routines that are realistic and manageable, and providing opportunities for residents to contribute according to their capacities and interests. It also requires recognising that governance procedures and informal everyday interactions continually intersect in shared residential gardens, with direct implications for the physical space. For this reason, it is important to agree early on which forms of informal interaction between residents and the garden are welcome, and to revisit this understanding periodically as governance practices evolve alongside collective learning and shared life. Together, these considerations support the community's engagement with the garden over the years.

Participation in gardening, maintenance, and management, however, varies between sites and depends on factors that lie beyond the direct control of either the designer or the community, such as the residents' profiles or their prior experience with gardening and collective decision-making. Nonetheless, comparison across the studied gardens shows that, in addition to the practices mentioned above, design can support sustained engagement when the shared garden is conceived to be visible, accessible, inviting, and regularly frequented. Moreover, different modes of interaction can be explored collaboratively during the design phase, helping residents connect spatial areas to specific maintenance practices and shared responsibilities. Such early engagement strengthens the link between design and collective care.

Early participation in the design process allows residents and designers to bring together different forms of expertise — technical, experiential, and place-based — ensuring that the emerging design reflects both professional judgement and community values. Through this process, the design becomes a shared outcome; the design process often acts as a unifying element among future residents who do not yet know one another, helping them begin to recognise themselves as a community.

Garden composition

As a garden evolves over the years, its composition inevitably changes. Yet the original compositional structure provides the conditions through which transformation unfolds. Design contributes not by constraining change but by establishing a spatial and material framework that makes change workable. When durable relationships coexist with areas that can be gradually reinterpreted, the garden remains adaptable while retaining coherence over time.

The four compositional forms contribute to this framework in different ways. The basic form tends to remain the most stable. Its endurance allows it to act as a long-term frame within which other layers may change, both gradually and seasonally.

The spatial form evolves through plant growth and continuous interaction between human and non-human agents. Some spatial relationships may shift, while others become enduring anchors that maintain the clarity of the overall structure. The programme form is shaped by shifting patterns of collective life, while areas for shared use, individual retreat, and gardening tend to persist even as their arrangement changes. The image form is the most mutable, shaped by changing colours, textures, smells, and sounds, although certain evocative qualities continue to define the garden's recognisable character.

Together, these forms create a compositional setting that accommodates transformation without destabilising the garden's fundamental structure.

5.1.6 **Orders of transformation**

Not all forms of change carry the same implications for the long-term life of a shared residential garden. The cases reveal three broad orders of transformation that differ in their origins, their effects, and the extent to which they align with the intended composition of the garden.

First-order transformations arise from natural development — plant growth, seasonal variation, regeneration, and the gradual ageing of materials shaped both by weathering and by everyday use. These changes are intrinsic to the garden as a living and material environment, reflecting its gradual maturation.

Second-order transformations occur when residents adapt, refine, or maintain the garden in response to evolving routines, preferences, or meanings. Such adjustments tend to work with the existing framework rather than against it. They express active engagement and often deepen residents' relationship with the garden through small interventions, repairs, and reinterpretations that help sustain its relevance over time.

Third-order transformations involve redesign or substantial spatial reorganisation carried out by residents. These changes typically indicate misfit: a divergence between expected and actual use, or a lack of alignment between the garden's composition, its governance arrangements, the community's evolving circumstances, and, at times, the site's landscape conditions. In some cases, they also reflect a limited capacity to accommodate second-order transformations over time, allowing smaller tensions to accumulate until more substantial intervention becomes necessary. In such situations, transformation becomes a symptom of structural inadequacy in responding to emerging social–ecological requirements.

Distinguishing between these orders of transformation clarifies the basis for cultivating change. When design and governance collaborate to support first- and second-order transformations, the garden can evolve coherently over time. Third-order transformations, however, need to be mitigated within this approach to cultivation, as they require disruptive redesign and place disproportionate pressure on governance arrangements. The aim is therefore not to minimise change or to embrace every possible form of it, but to cultivate transformations that remain compatible with the garden's organisational and compositional foundations.

5.2 Implications for garden design and governance

Following the previous discussion, this section examines the implications of cultivating change for both garden design and garden governance. It identifies and elaborates on the capacities required of each domain to support first- and second-order transformations, emphasising the collaborative relationship through which design and governance sustain the ongoing evolution of shared residential gardens.

In this chapter, **capacities** are understood as situated and relational potentials of both governance and design to support the long-term evolution of shared residential gardens. In governance literature, ‘capacity’ is commonly discussed as the potential of actors to align actions and deploy resources in relation to collective affairs (Popering-Verkerk et al., 2022). While the concept of capacity is more explicitly articulated in governance research, related discussions can also be found in design and planning scholarship, where attention is given to how design expertise and processes operate as means through which issues are addressed in practice (Malmberg, 2017; Rubio & Fogué, 2015).

Building on these perspectives, this section first elaborates the capacities of design, then those of governance, and concludes with a reflection on their interdependence, highlighting how capacities in both domains overlap and reinforce one another in supporting garden transformation over time.

5.2.1 Garden evolution as a design assignment

This subsection discusses the capacity of design and the designer to support the long-term evolution of shared residential gardens, based on the ongoing collaboration between garden design and governance observed in the cases.

Design does not end with the conception phase but continues through time by means of choices that condition, support, or accommodate transformation. The role of the designer lies in structuring, anticipating, and enabling the dynamics that unfold in the garden over time, articulating human and non-human elements alike. In this sense, the capacities of design can be grouped into three interrelated categories: **structuring, anticipatory, and enabling**.

While the specific articulation of these design capacities emerged inductively from the empirical material, it aligns with established debates in landscape architecture and urban design. Classic accounts emphasise how spatial **structure** and composition shape legibility, use, and experience over time, by organising relations between elements and guiding perception and movement (Aben & De Wit, 1999; Lynch, 1960). A second strand of scholarship has long argued for designing with ecological processes, foregrounding the temporal dynamics of growth, succession, and change as a central concern of landscape practice (McHarg, 1969). From this perspective, design is understood as a practice that **anticipates** transformation, working with uncertainty and long-term processes. More recent work extends this process-oriented view by arguing that social relations and everyday practices are equally entangled with landscape transformation and therefore also need to be addressed alongside biophysical change (De Block & Vicenzotti, 2018). Finally, a growing body of literature connects design to stewardship and management, highlighting how design can **enable** ongoing care arrangements, shared responsibilities, and collective agency, rather than treating the built outcome as an endpoint (Luo, 2021).

The capacities proposed here build on these lines of thought, while remaining grounded in the situated practices observed across the research cases. Taken together, these three capacities show that design operates both as a frame and as a process — an act of foresight and continuous negotiation with human and non-human forces. Through **structuring**, it provides the foundational frame that makes change possible; through **anticipation**, design prepares the garden for the evolutionary processes it will undergo; and through **enabling**, it sustains collective agency and care. In doing so, design establishes the material and conceptual conditions that allow governance to act and adapt, ensuring the garden's continued relevance over time.

Structuring capacity

Design gives form to the garden, expressed through its composition. The basic form functions as an anchor of permanence that supports the garden's evolution over time. Yet design must also shape spatial, programmatic, and image diversity, ensuring that this richness endures as the garden evolves. This includes variety in materials and evocative qualities, and the articulation of more open and more enclosed spaces, as well as areas oriented towards sensory experience and social interaction for different age groups.

In particular, transition zones between individual and shared spaces are fragile areas prone to change. These require a clear framework to guide community action and support long-term evolution. More broadly, the idea of establishing a framework that supports change while guiding collective action can be extended to other aspects of garden design.

Anticipatory capacity

The designer's anticipatory capacity refers to the ability to foresee the long-term evolution of gardens — including plant growth, material decay, and other biophysical processes — and, above all, their consequences for implementation, maintenance, and future transformation in relation to the intended design. This involves spatial, sensory, and programmatic considerations.

To address these aspects, the designer draws on technical knowledge to develop a non-static design that incorporates processes of implementation, evolution, and potential transformation, while recognising the governing community's role in these processes. Participatory design becomes a crucial resource for ensuring that the community can contribute meaningfully and remain well informed about design decisions and its responsibilities for long-term management. Providing guidance during the early years of establishment can also be valuable, and design manuals may assist the community in responding to emerging issues.

Enabling capacity

Design can support the establishment and long-term management of the garden by taking into account residents' resources, interests, and abilities, both at the outset and in the years that follow. Ensuring an appropriate balance between gardening, maintenance, and management practices helps sustain ongoing care.

Above all, design can strengthen implementation and stewardship by ensuring that the shared garden is visible and accessible, since regular use and everyday presence are essential for it to remain meaningful to the community. Design can also support governance by clarifying boundaries while remaining open to incremental change. The designer, in turn, can facilitate engagement during the design phase by coordinating participatory activities that help foster a sense of collective identity.

5.2.2 Garden evolution as a governance task

This subsection examines how community governance shapes the long-term evolution of shared residential gardens, building on the collaborative relationship between design and governance outlined in the previous subsection. Governance mediates between human and non-human actions, influencing how the garden develops over time. Its responsibilities unfold through distinct capacities that sustain continuity and responsiveness. In this discussion, these capacities are grouped into three interrelated categories: **coordinative, adaptive, and integrative**.

The governance capacities identified in this section emerged from the comparative analysis of community practices. At the same time, they resonate with governance scholarship that conceptualises coordination, adaptation, and integration as central attributes of collective governance (Popering-Verkerk et al., 2022). **Coordination**, understood as the alignment of actors, roles, and actions towards shared objectives, is widely recognised as a foundational capacity of any organisation or collective arrangement (Begum & Momen, 2019). **Adaptation** refers to the ability of governance arrangements to adjust practices and rules in response to changing conditions and emerging challenges, and is commonly discussed in relation to learning and responsiveness in governance processes (Plummer et al., 2013). **Integration** is often defined as the capacity to align policies and actions across multiple actors (Vince et al., 2024); in this chapter, this notion is extended to include the coordination of human and non-human actors that jointly shape garden evolution. The capacities outlined here translate these insights into a practice-oriented framework grounded in the empirical material.

Taken together, these capacities show that governance is a continuous process of negotiation, learning, and adjustment. It sustains the shared garden as a living system shaped by human and non-human relations. While design provides structure and intent, governance maintains continuity, responsiveness, and relevance as conditions and collective life evolve.

Coordinative capacity

Governance begins with the establishment of clear structures — roles, procedures, and maintenance practices — developed in accordance with the community's resources and interests. From the outset, it requires explicit agreements on how spaces may be used, modified, or personalised. Although these policies may evolve over time, early clarification of expectations helps prevent conflict and supports shared responsibility.

Coordinative capacity is equally essential during the ongoing management of the garden. Both routine maintenance and occasional adjustments depend on coordinated collective action, including planning, task allocation, and timely execution. Regular monitoring supports safety and overall quality, while realistic practices ensure that responsibilities remain compatible with available human and financial resources.

Adaptive capacity

Governance must respond to changes in aspirations, life cycles, and biophysical processes. As communities evolve, new social, aesthetic, and demographic needs emerge, requiring opportunities for discussion and collective decision-making. Adjustments relating to leisure, family routines, or shifting aesthetic preferences are natural developments and should be addressed collectively. In this sense, governance plays a central role in responding to the changing circumstances that shape how the garden is used and experienced.

At the same time, governance structures themselves need to remain open to adjustment. As collective life changes, rules, responsibilities, and procedures may no longer align with the group's capacities or expectations. Revisiting these arrangements — for example, by accommodating a greater role for informal interactions or adapting responsibilities to shifting resource capacity — ensures that governance does not become a constraint on the garden's evolution. Through such updates, governance maintains its ability to support a garden that remains functional and meaningful over time.

Integrative capacity

Effective governance depends on balancing human and non-human agencies. It must recognise the agency of plants, animals, and environmental conditions, integrating these into decision-making processes — for instance by ensuring habitats for urban fauna through conscious maintenance practices. The growing ecological awareness observed in the cases also demonstrates the need for flexibility and ongoing discussion within governance models.

Governance should also facilitate hybrid interactions — both formal and informal, planned and spontaneous — and must ensure that all voices can be heard and acknowledged. As trust develops, such interactions become routine and embedded in community life. Meetings, everyday cooperation, and informal exchanges all require support so that responsibilities remain visible, shared, and collectively upheld.

5.2.3 Garden design and governance as ongoing collaboration

Garden design and governance operate not as separate spheres but as mutually reinforcing processes that together sustain the long-term evolution of shared residential gardens. The three capacities of design — structuring, anticipating, and enabling — establish the spatial and conceptual foundations through which change can unfold. In parallel, the three capacities of governance — coordinative, adaptive, and integrative — support the everyday negotiation, adjustment, and collective action that keep the garden functional and meaningful.

In practice, these capacities overlap and depend on one another: design anticipates biophysical and social developments that governance later manages; governance adapts its procedures in response to spatial and ecological shifts shaped by design; and both domains jointly create the conditions for first- and second-order transformations to be accommodated without destabilising the garden's underlying structure or overburdening its governance arrangements. Understanding this collaborative relationship provides the basis for deriving the design principles discussed in the next section, which explore how change may be cultivated over time.

5.3 Deriving principles

Building on the insights gained from the analysis of landscape transformation and the intertwined roles of design and governance, this section explains how a set of design principles was derived. The patterns identified in Section 5.1 capture recurring ways in which change unfolds in shared residential gardens, including the gradual reconfiguration of spatial boundaries, the shifting negotiation of shared responsibilities, and the evolving relationships between residents, vegetation, and built elements over time. Together, these patterns reveal how garden transformation is shaped by both material change and social practice, unfolding through iterative and often non-linear processes. Section 5.2 articulate how design and governance, through overlapping and mutually reinforcing capacities, can support and steer these processes over time. Design contributes through structuring, anticipatory, and enabling capacities, shaping spatial conditions while accommodating future change and ongoing stewardship. Governance operates through coordinative, adaptive, and integrative capacities, aligning actors and practices, responding to emerging conditions, and mediating relations between humans and non-humans.

Drawing on this synthesis, the principles presented here articulate how design can collaborate with governance to support the long-term evolution of shared residential gardens, thereby sustaining first- and second-order transformations. They translate empirical insights into guiding orientations for design practice that remain responsive to changing social and ecological conditions.

The section also explains how the principles were explored through a design workshop at TU Delft and subsequently refined in a focus group with Lanxmeer residents. Together, these two stages provided complementary perspectives: the workshop tested the generative potential of the principles in design practice, while the focus group examined their resonance and feasibility in lived experience.

5.3.1 Principles as guidelines

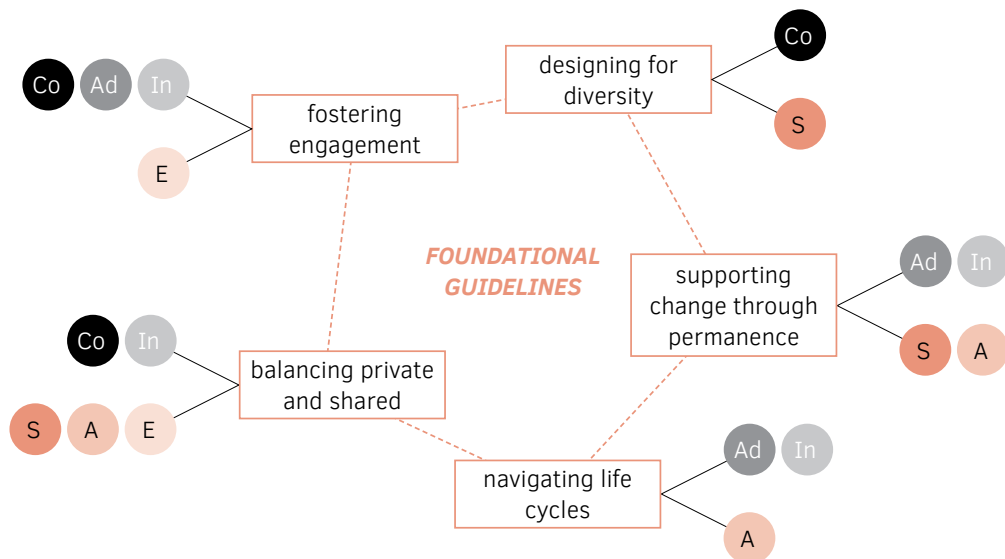


FIG. 5.1 Foundational guidelines in relation to the capacities of design (S = Structuring; A = Anticipatory; E = Enabling) and governance (Co = Coordinative; Ad = Adaptive; In = Integrative).

The findings were synthesised into five foundational guidelines: **designing for diversity**, **supporting change through permanence**, **navigating life cycles**, **balancing private and shared**, and **fostering engagement**. These guidelines were derived from the patterns of transformation identified through the empirical analysis (Section 5.1) and from the capacities of design and governance discussed in Section

5.2. While grounded in the specific practices observed in the case studies, the guidelines also resonate with existing scholarship in landscape architecture, urban design, and governance, where similar concerns have been addressed from different theoretical and practical perspectives.

Each guideline brings together one or more capacities of garden design and governance, outlining how both domains can collaborate to support first- and second-order transformations. Taken together, the guidelines provide the basis for principles that help sustain the long-term evolution of shared residential gardens, while positioning the empirical findings of this research in relation to broader debates in the literature. (Figure 5.1)

Designing for diversity

Incorporating diversity into the design of shared residential gardens emerged as essential across the research sites. Many of the adjustments observed over time reflected residents' attempts to introduce spatial, sensory, or ecological variety that had not been sufficiently provided in the original design. When such diversification occurs only through later modifications, it often tends to constitute third-order transformations. For this reason, diversity needs to be considered from the outset, particularly in residential commons where the garden is collectively inhabited, negotiated, and cared for. Unlike private gardens, which can directly reflect the wishes of a single household, shared gardens require a compositional richness capable of accommodating multiple routines, practices, and values.

Spatially, a balance between open and enclosed areas proved particularly relevant, as communities tended to correct this imbalance when it was not sufficiently expressed in the original design. Programmatically, diversity involves providing spaces oriented towards sensory experience alongside those supporting social gatherings, while ensuring that users of different ages are accommodated — including small areas for everyday gardening practices beyond pruning and trimming. This calls for spaces and objects that can support varied forms of occupation and interaction. In terms of image, diversity refers to variation in materiality — including colours, textures, and planting palettes — as well as evocative qualities that enrich the collective imagination of the garden.

A further dimension of diversity relates to habitat provision for non-human species. Different forms of shelter, nesting opportunities, and food sources support urban fauna, which interacts with the garden in ways that contribute to its ecological dynamics. Across the cases, many residents introduced habitat features to diversify

ecological conditions, reflecting growing environmental awareness. Such habitat diversity requires attention not only in design but also in everyday maintenance, as practices can strengthen, alter, or undermine the conditions on which habitats depend. Designing planting schemes, spatial relationships, and microhabitats that incorporate contrasts — such as enclosure and openness, shade and sunlight, calmer areas and more trafficked ones, or variations in moisture — enables habitat variety to be integrated within the overall composition. At the same time, maintenance routines must be adjusted to sustain these environments over time, including varying the intensity of care and using tools and techniques suited to the fragility of different habitats.

From a design perspective, this guideline relates to the structuring capacity of design: it is primarily about giving form through composition. Yet such diversity also depends on collaboration with garden governance, as communities are responsible for implementing and maintaining these spaces. Maintenance practices therefore need to be developed with attention to the diversity envisioned in the design, even as they adjust to the garden's evolution. Clear frameworks for roles, responsibilities, and procedures are essential in this regard, highlighting the coordinative capacity of governance to support and sustain diversity over time.

Spatial, sensory, and material diversity in shared residential gardens also resonates with established debates in landscape architecture that foreground perception and experience as central design concerns. Designing with perception, as articulated by de Wit and Bobbink (2020), emphasises how spatial composition shapes the ways in which landscapes are experienced through movement, sight, sound, smell, and tactility. From this perspective, diversity is a means of structuring varied experiential relations between people and space. This understanding aligns with James Corner's argument that landscape is shaped not only through visual form but through a broader range of 'eidetic operations', including acoustic, tactile, and cognitive dimensions, which together contribute to more dynamic and engaging environments (Corner, 1999).

Programmatic diversity further echoes urban design scholarship that stresses the importance of accommodating multiple activities and everyday practices within shared spaces. Jan Gehl's work highlights how a diversity of functions and assembled activities supports vibrant public life by enabling different forms of use to coexist over time (Gehl, 2010).

Finally, the ecological dimension of diversity reflects longstanding arguments for recognising cities and designed landscapes as evolving socio-ecological systems. Both Spirn (1984) and Lister (2015) emphasise that ecological processes should be integral to landscape design and planning, as foundational conditions that carry social and cultural value.

Together, these strands of literature reinforce the relevance of diversity as a guiding principle for the design of shared residential gardens, while supporting the empirical finding that spatial, programmatic, image-related, and ecological variety must be deliberately structured from the outset and sustained through ongoing care.

Supporting change through permanence

Just as spatial, programmatic, image, and ecological diversity must be established through design, it also needs to be sustained over time, even as the garden evolves. This guideline does not aim to prevent alterations, but to ensure that diversity continues to exist despite ongoing change.

This continuity is supported in two complementary ways. The first lies in the designer's anticipatory capacity: the ability to foresee how the garden may evolve over time and to conceive its spaces with those temporal trajectories in mind. Biophysical processes such as vegetation growth and material decay are integral to this evolution, and anticipating their consequences allows the design to remain coherent as the garden matures.

The second lies in the ongoing relationship between the garden and its gardeners — that is, in community governance. It is through everyday acts of care such as pruning, trimming, replanting, and replacing deteriorated elements that diversity is sustained. This reflects the integrative capacity of governance, which involves negotiating between human and non-human interests as the garden changes.

The structural support that enables the garden to evolve rests on the anchoring provided by certain aspects of the spatial, programme, and image forms. At the same time, the basic form represents the most stable expression of permanence and can support change in the other compositional forms — whether predictable or unforeseen — by providing an underlying framework. This speaks to the structuring capacity of design. Yet sustaining change through the endurance of the basic form also draws on the adaptive capacity of governance, which enables the community to respond to evolving needs and aspirations while maintaining continuity in the garden's overall organisation. A clear spatial structure also facilitates governance by helping residents negotiate responsibilities, anticipate maintenance needs, and make decisions about adjustments without compromising the coherence of the whole.

The idea of sustaining spatial, programmatic, image, and ecological diversity over time resonates with Raxworthy's concept of the viridic, which frames maintenance as an active and situated practice through which living matter continuously reshapes

spatial form (Raxworthy, 2021). From this perspective, garden transformation is not treated as a deviation from design intent, but as an inherent condition of landscapes shaped by plant growth and decay. Maintenance becomes a means through which change is engaged in real time, relying on attentive observation, adjustment, and context-specific responses rather than on the preservation of a fixed state.

The notion that long-term transformation can be supported through a stable underlying structure is also reflected in design scholarship that conceptualises form as a framework rather than a final outcome. Luo (2021)'s discussion of 'temporal openness' emphasises how design can establish enduring spatial conditions that remain receptive to gradual change and reinterpretation. Similarly, Leupen (2006) describes the architectural frame as a stable organising structure that enables adaptation over time by separating what must endure from what can change. Together, these perspectives support the argument that permanence, when conceived as a structural condition rather than a static form, can actively enable the sustained evolution of shared residential gardens.

Navigating life cycles

Changing life cycles frequently trigger transformation. These include the life cycles of families, plants, and materials. Such processes often overlap, with different motivations and temporalities intersecting — for instance, when social changes coincide with ecological growth or material decay. These rhythms create opportunities to consider programmed transformation as a means of supporting the evolving needs of shared residential gardens. Examples include using materials that provide temporary structure while plants establish, or introducing objects and planting choices that support short-term or age-specific activities aligned with the community's demographic composition at a given moment.

This guideline relates directly to the anticipatory capacity of design — the ability to envision how social and ecological processes may unfold and to incorporate this temporal dimension into the composition. At the same time, it engages both the integrative capacity of governance, through negotiation between human and non-human actors, and its adaptive capacity, since ongoing dialogue is required to recognise shifting life cycles and adjust governance mechanisms accordingly.

The idea of navigating life cycles resonates with established landscape architectural debates on designing with natural processes and succession, most notably articulated by McHarg (1969), who emphasised the importance of working with ecological change as a foundational design concern. However, this guideline extends

such process-oriented thinking by foregrounding the intersection of social and ecological temporalities in the garden environment. In doing so, navigating life cycles frames change not as a predictable or automated process, but as an opportunity to engage with forms of transformation that emerge from life cycles that can be anticipated, yet not fully controlled.

Balancing private and shared

The idea of balancing individual private spaces with shared gardens emerged from two observations in the findings. First, the position, location, and proportion of the shared garden within the housing development and in relation to individual spaces have a significant influence on how communities engage with it. Second, the boundaries between private and shared spaces proved to be continually subject to change.

Balancing private and shared therefore refers not only to the relative proportion of these spaces, but also to their spatial arrangement, which affects the visibility and accessibility of the shared garden. At the same time, the guideline calls for boundaries that are sufficiently clear to facilitate governance. In this respect, it relates both to the structuring capacity of design and to its enabling capacity, which concerns supporting communities in implementing and managing the garden over time. It also depends on the coordinative capacity of governance to ensure that maintenance and decision-making processes remain coherent.

Beyond this, the guideline highlights the importance of designing boundaries with clear design intentions. This opens a wide spectrum of possibilities — from embracing heterogeneity in physical boundaries to seeking coherence when viewed from the shared space. Such strategies draw on the anticipatory capacity of design, while relying on the coordinative and integrative capacities of governance: the former to establish policies that balance individual freedom with collective cohesion, and the latter to facilitate hybrid interactions — formal and informal, planned and spontaneous — through which boundaries evolve meaningfully over time.

The emphasis on balancing private and shared spaces resonates with scholarship that conceptualises boundaries as graduated spatial systems through which social interaction is regulated. Van Dorst's notion of 'privacy zoning' demonstrates how residential environments are structured through multiple intermediary zones that mediate between individual and collective territories, allowing residents to control visibility, accessibility, and social engagement in situated ways (Van Dorst, 2005). From this perspective, the effectiveness of shared spaces depends less on the formal

distinction between private, semi-public and public, and more on the legibility and usability of boundaries that support everyday negotiation. This understanding reinforces the empirical finding that clear yet adaptable boundaries are essential for both spatial coherence and governance, enabling shared gardens to function as collectively inhabited spaces without undermining individual autonomy.

Fostering engagement

Finally, this guideline stems from an understanding of both the limitations and the potential of garden design and governance to influence community engagement with the garden, amid numerous variables that lie beyond their control. Engagement is treated here as a relational condition that unfolds over time through use, care, and collective experience.

Engagement can be fostered from the outset through participatory moments in which residents help shape aspects of the design and its organisation. Yet the role of the designer extends beyond facilitating these processes. Design must also bring technical knowledge, spatial structuring, and long-term thinking — including considerations for those not present in the participatory process, such as non-human actors and future generations. These contributions help establish a coherent framework within which engagement can take root and continue. In this sense, the guideline relates to the enabling capacity of design, as well as to the coordinative capacity of governance in developing clear arrangements that support care and decision-making over time.

Participation can contribute to fostering engagement by strengthening residents' relationship with the place when understood not as a discrete phase of participatory design, but as an ongoing condition that unfolds throughout the life of the garden. In shared residential gardens, this is closely linked to gardening practices, which rely on repeated, embodied interaction with the site and through which attachments to place are gradually formed. As articulated in Yi-Fu Tuan's (1974) concept of 'topophilia', such attachments emerge through lived experience and affective bonds developed in relation to specific environments. From this perspective, design can support engagement by providing spatial conditions that facilitate use, encounter, and sensory experience, enabling relationships between people and place to deepen over time (Wit & Piccinini, n.d.). Design may also help articulate and make perceptible the particular character of a site, strengthening inhabitants' sense of rootedness. Norberg-Schulz (1980) conceptualises this as revealing the *genius loci*, while Relph (1993) similarly emphasises the importance of reclaiming place through design approaches that reinforce experiential depth and continuity, rather

than treating place as abstract or interchangeable. In addition, the expertise of the landscape architect plays a crucial role in representing non-human actors within the design process, giving ecological processes and requirements a form of participation through informed spatial and material decisions (Ruff, 1982).

Engagement can also be sustained in the long term by designing with attention to the agency of non-human context setters, and to the resources, interests, and skills available within the community. This requires the enabling capacity of design and both the integrative and adaptive capacities of governance: the former to negotiate with non-human actors, and the latter to reflect critically on the community's ability to act and care as circumstances change.

From a governance perspective, this long-term engagement depends on the alignment between rules, resources, and collective capacities. Ostrom's work on common-pool resource management demonstrates that sustained collective action is more likely when institutional arrangements are attuned to what communities are realistically able to maintain over time, rather than assuming unlimited participation or commitment (Ostrom, 1990). In this sense, fostering engagement is less about maximising involvement and more about establishing conditions that support continuity, shared responsibility, and the practical capacity to care for common spaces.

Across these dimensions, the aim is not to maximise participation, but to foster the conditions through which residents remain connected to the garden's ongoing life and capable of sustaining it.

5.3.2 Testing and validating principles

This section presents the main inputs and takeaways from the design workshop and the focus group, in which the discussion was structured around the foundational guidelines. These two activities served complementary purposes: the workshop tested how the guidelines could inform design decisions, while the focus group examined how they resonated with residents' lived experience of garden transformation. Together, they provided the basis for refining and validating the principles that are examined later in this chapter.

Design workshop

The design workshop provided an opportunity to explore how each foundational guideline could inform concrete design decisions. For this exercise, two Lanxmeer gardens were used as case studies: Nesciohof, in the northern garden complex (referred to in the workshop as Garden A or GA), and Kassenhof, in the southern complex (referred to as Garden B or GB). Participants were not shown the internal design or photographs of the gardens themselves, but only the urban form and a photographic sequence of their surroundings and building façades.

Four teams, labelled T1 to T4, developed design proposals. Two teams worked with Garden A and two with Garden B, resulting in the proposals T1GA, T2GA, T3GB, and T4GB. The results helped reveal how the guidelines operated as generative tools and where ambiguities or tensions became visible. The paragraphs below summarise the main insights that emerged for each guideline.

A On 'Designing for diversity'

Participants tended to interpret diversity primarily in spatial and programmatic terms, often combining open and enclosed areas and proposing multi-purpose spaces. Visual diversity, expressed through planting choices or material variation, appeared in some proposals but not in all, as most designs remained at a more conceptual level without detailed discussion of materiality. Ecological diversity, including habitat structures and conditions for urban fauna, was addressed more explicitly in some groups than in others, but was still acknowledged across all proposals.

Participants agreed that this guideline is fundamental for landscape design in general and not specific to shared residential gardens as a typology. Its application occurred through the definition of spaces using spatial boundaries and pathways, which demonstrated the structuring capacity of design. However, there was one case in which the proposed design did not formally structure space. In T2GA, the team suggested that each household could exchange a sort of 'credit' within the shared space, allowing residents to define the features of a small portion of the shared garden according to their individual preferences. In this scenario, diversity would emerge primarily from stakeholder agency rather than from the structure proposed by the design. (Figure 5.2)



FIG. 5.2 Proposal T1GA (left), in which 'bubbles' defined spaces allocated to different programme-related activities, and T2GB (right), which explored a 'minimal-structure' approach, where fragmented pieces represent potential spaces and activities shaped by stakeholder agency within the shared area.

B On 'Supporting change through permanence'

The challenge of maintaining diversity over time despite potential changes was addressed only subtly, largely due to the limited duration of the workshop. Views on this aspect varied across a spectrum. At one end, T2GA embraced the idea that the space might change entirely over time in ways that could not be anticipated. At the other, T3GB assumed that collective maintenance would work to preserve the features defined in the original design. Between these positions, T1GA defined 'bubbles' as more or less generic spaces expected to change over time, and T4GB imagined possible shifts in the future, such as a playground becoming a small livestock area after five to 10 years.

All proposals intuitively worked with the idea of the basic form as a stable backbone and anchored themselves in some form of structuring element, as seen for example in the strongly demarcated axis in T3GB. Even T2GA, with its minimal-structure approach, worked with a flexible or modular system anchored by planted trees to demarcate each module. Residents could plant additional trees using their credits, leading to gradual transformation of the space over time. (Figure 5.3)

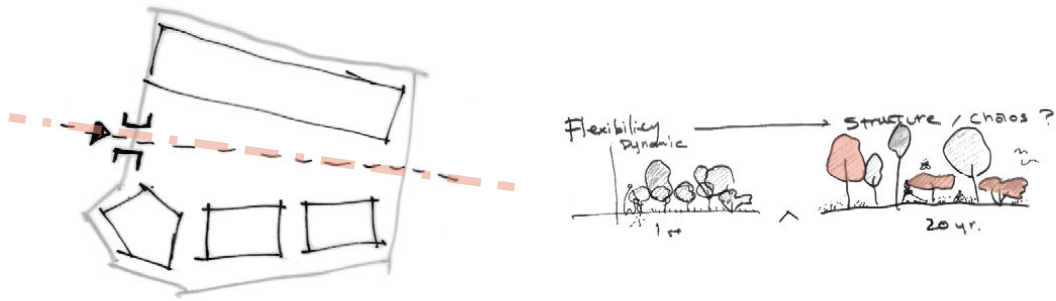


FIG. 5.3 Proposal T3GB (left), illustrating the axis used as an organising element in the composition, and T2GA (right), showing the imagined 'chaotic' evolution in which roughly half of the initial trees would remain alongside new ones planted by residents.

C On 'Navigating life cycles'

Some groups expressed uncertainty about how different life cycles could inform design. Others considered the guideline relevant but difficult to apply within the limited time available during the workshop. One group noted that they interpreted the guideline as having a purpose that more explicitly foregrounds ecological processes. In practice, however, the guideline was not applied in any of the proposals.

D On 'Balancing private and shared'

All proposals addressed views and access to the shared gardens, highlighting the importance of the garden for the housing development and for community life. In three proposals, individual and collective spaces were clearly demarcated, with shared spaces being considerably larger than the private ones.

In T1GA, the transition between private, semi-private, and shared areas was sharply demarcated by a linear boundary, with the semi-private zone described as an area where visibility towards the garden is limited to a single row of houses. This contrasts with T3GB and T4GB, where the transition was conceived as a softer buffer zone mediating between private and shared space. Even so, in both cases maintenance responsibilities were clearly indicated in the drawings, illustrating the interplay between design and governance.

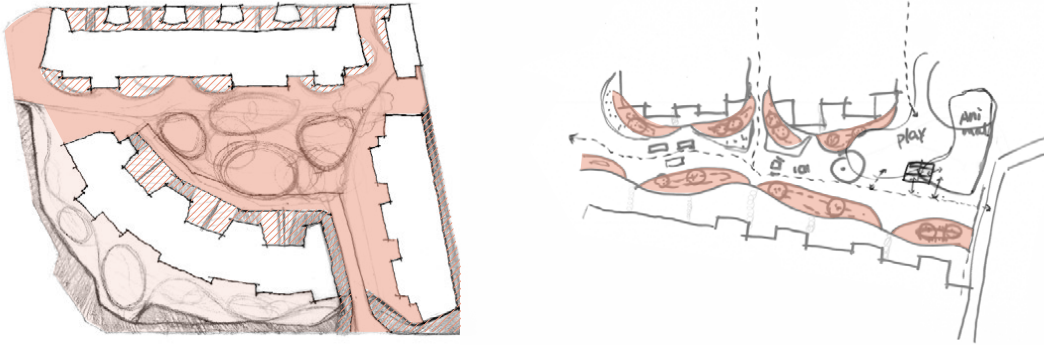


FIG. 5.4 Proposals T1GA (left), with sharply demarcated private (striped), semi-private (light colour), and shared zones (dark colour), and T4GB (right), illustrating a buffer zone between private and shared areas together.

In T2GA, given the approach adopted, no individual gardens were proposed. Instead, residents would use their credits to secure small zones within the collective space where they could express their individual preferences. (Figure 5.4)

E On 'Fostering engagement'

The idea that design could foster engagement was widely debated. Some participants were sceptical and argued that this was difficult to address without a specific community in mind or without speaking directly to future users. One group questioned whether engagement could be supported through design at all, suggesting that it depends on a sense of place that takes time to develop. This view was countered by those who advocated for participatory design, emphasising the importance of interaction between designer and community in co-creating meaning. Others noted that opportunities for participatory processes are often limited in practice, as commissions are typically issued by municipalities or developers, and designers rarely meet future residents.

Even so, participants engaged with the image form by exploring evocative aspects of the composition. These exercises helped articulate how the visual and sensory character of the garden can reinforce identification with the place and the wider landscape in which it is situated. In this way, the image form supported the principle of fostering engagement by contributing to a shared sense of belonging and by motivating collective care.

In T3GB, the garden was designed to reflect the surrounding landscape. A small clump of trees was placed in the part of the garden closest to the adjacent wooded area, functioning as a transition between the wooded edge and the more manicured garden. A water feature along the central axis referenced the water extraction area in Lanxmeer. Both features were used to create a connection between the garden and its wider landscape and to generate meaning through design. In T4GB, the proposal introduced a greenhouse placed at the centre of the composition to strengthen the garden's image by creating a dialogue with the architecture of the 'greenhouse homes' (*kaswoningen*). (Figure 5.5)

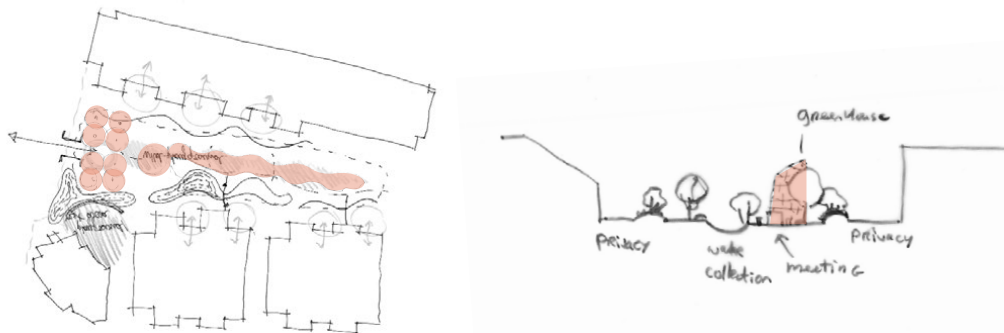


FIG. 5.5 Evocative aspects explored in the proposals: T3GB (tree clump and water feature) and T4GB (greenhouse).

Focus group

The focus group brought together residents of Lanxmeer to reflect on the proposed guidelines and to consider their relevance and practical implications for daily life in the shared gardens. The exchange served both to confirm the pertinence of several guidelines and to illuminate how they were interpreted, questioned or reframed through residents' lived experience.

For the purposes of this research, the synthesis below is arranged according to the guidelines. The focus group discussion unfolded in a semi-structured and informal manner, and participants frequently introduced topics that were not direct responses to the prompts. Nevertheless, these contributions intersect with the themes explored in the guidelines and can be coherently discussed through that lens.

A On 'Designing for diversity'

Residents generally expressed an appreciation for diversity in both material and spatial terms. Some commented that gardens which become overly dark and enclosed tend to feel smaller and less inviting. A resident from Quartethof noted the opposite condition in their own garden, describing it as too open and experienced as a single undifferentiated space rather than a sequence of smaller rooms.

Programmatic diversity was also viewed positively. Residents emphasised that the type of programme required in a shared garden shifts according to the age composition of the community. Teenagers were discussed as a group whose needs are particularly difficult to accommodate. Rather than lacking specific spaces in the gardens, residents questioned whether shared gardens are an appropriate setting for this age group at all. One participant observed that adolescents often seek places where they can withdraw from the constant visibility of parents and adult neighbours, which makes them unlikely to gather in a shared garden. Although residents mentioned examples of youth facilities functioning well elsewhere, they also recalled that similar initiatives had faced resistance within Lanxmeer.

Diversity was also discussed in relation to garden aesthetics and maintenance cultures. Some residents prefer a neat and orderly appearance, while others favour more ecological approaches, and participants understood diversity to include the balance between these orientations. It was also noted that some gardens seem to adhere more closely to permaculture practices than others. One resident recalled that such practices form part of the EVA-Lanxmeer principles and suggested that they should be followed to some degree across the neighbourhood.

Finally, residents spoke about the distinct identities of each court and the role of community culture in shaping aesthetic outcomes. This was described as a form of social diversity that reflects the preferences, practices and histories of different groups, and was regarded as a positive characteristic of the neighbourhood.

B On 'Supporting change through permanence'

Although some participants mentioned that they had not previously recognised the potential of design to support long-term collective management, they were receptive to the discussion and engaged critically with the idea. Residents acknowledged the presence of enduring shapes and structures in their gardens, despite the many changes that have taken place over time. One participant noted that this reflects the

logic of the 'Casco Concept', understood as a permanent framework that allows for flexible use. The idea that design can provide a stable frame that supports change over time was regarded as both relevant and valuable.

C On 'Navigating life cycles'

Residents recognised the different life cycles of plants, materials and households within their gardens. One participant was particularly intrigued by the idea of designing parts of the garden with an intended lifespan, allowing them to deteriorate after a number of years in order to prompt a moment of programmed renewal. Another resident agreed that such an approach could be useful, explaining that their own garden tends to operate with a degree of inertia, where maintenance is carried out but adjustments to meet changing needs rarely take place.

A larger group, however, raised concerns about the feasibility of designing with these life cycles in mind, especially with regard to household dynamics, which depend heavily on turnovers. Participants also highlighted the cultural and personal dimensions involved. One resident explained that a neighbour brought in a cherry tree from her former garden, and that the community accepted it for its symbolic value despite its scale and its impact on light and nearby plants. This example was used to illustrate how cultural considerations often outweigh strictly functional or proportional ones.

Some participants questioned whether it made sense to design for different family life cycles at all, suggesting that if a garden or a house no longer fits its purpose, residents might simply move rather than adjust the garden. One resident referred to the broader housing situation in the Netherlands, noting that many older people remain in large houses while younger families struggle to find even small dwellings. Others felt that attempting to plan such dynamics too closely would undermine the cultural and social developments that emerge naturally over time. In conclusion, residents agreed that these processes cannot be reduced to a mechanical system. While design can frame conditions for change, it should also leave space for emerging needs and preferences shaped by the personality and history of each community.

D On 'Balancing private and shared'

Residents reflected extensively on the relationship between private and shared spaces. Some argued that shared gardens need to be clearly larger than private ones in order to encourage collective use, while others noted that gardens that are too large can overwhelm a small group and turn maintenance into a burden. The size

of the community emerged as a key factor. Very small groups described how even minor disagreements can halt decisions altogether, whereas larger groups were said to reach compromise more readily, partly because it becomes clear that individual wishes cannot always prevail. At the same time, several residents acknowledged that groups that are too large may face organisational challenges of their own. Across these observations, there was a broad sense that shared gardens function most effectively with around 20 to 30 households: small enough to feel personal, yet large enough to operate smoothly.

The proportion of tenants was also discussed. Participants noted that uneven numbers of tenants and homeowners can lead to disparities in effort and responsibility. Yet the group was quick to point out that what ultimately matters is how the garden is organised from the beginning. Some courts composed entirely of homeowners experience more tension than others with many tenants, suggesting that governance arrangements, rather than ownership, are what shape cooperation.

Views and access were also discussed as factors that influence how residents use their shared spaces. One resident noted that part of the houses in their court do not overlook the garden, which is hidden behind hedges and parking spaces, and therefore rarely visited. Another commented that access is important, but when garden entrances face directly onto the street, the space can be used by passers-by as a shortcut. This has led several courts to reinforce their boundaries in response.

Residents remarked that when the boundary between private and shared space is not clearly defined, tensions tend to arise. They also recalled a case where shared land located adjacent to particular dwellings has led to private use. Participants also commented that overgrown hedges and constructions within individual gardens can alter the atmosphere of the shared space.

E On 'Fostering engagement'

Courts with regular workdays and meetings reported stronger cohesion, and residents explained that ongoing interaction helps them adjust their priorities over time, often valuing neighbourly relations above aesthetic disagreements. Informal leadership was described as key: people who take initiative tend to set tasks in motion and encourage others to participate. At the same time, residents agreed that leadership cannot be planned or assigned, as it emerges naturally within each group.

Early involvement in the design process was also seen as important, since co-designing the garden helps build a sense of ownership and strengthens community ties. Several participants mentioned that newcomers arriving after the garden has

already been established, particularly in phased developments, often disagree with earlier design decisions. In cases of turnover, residents felt that newcomers need to understand the identity of the garden and decide whether it aligns with their expectations before buying a house, which is not always the case.

Residents repeatedly emphasised that governance arrangements must be established from the beginning. Courts struggle when governance structures are vague or still forming, and many noted how difficult it is to change agreements once they are in place. Disagreements affect both social relations and the physical outcomes in the garden.

External pressures were also mentioned. Municipal decisions on housing allocation, new developments or parking layouts have a strong influence on garden life and can undermine the social and ecological intentions of the neighbourhood.

Finally, residents observed that changes in the garden reflect shifting needs rather than levels of engagement. A garden may appear physically stable for years while residents remain highly engaged in maintaining it and interacting with one another. Engagement, they noted, is not always visible through physical transformation.

Discussing inputs and takeaways

Taken together, the design workshop and the focus group provided complementary insights into how the foundational guidelines operate in both design reasoning and everyday garden life. Across both settings, the guidelines proved legible and productive, although each was met with distinct forms of enthusiasm, scepticism or reinterpretation that help further refine the principles.

In the workshop, the guidelines functioned largely as generative prompts. Participants tended to approach them through the lens of spatial organisation, programme definition and the creation of structural forms that could support future change. Diversity was interpreted primarily in spatial and programmatic terms, with most teams structuring the garden into recognisable rooms, boundaries and pathways. Permanence emerged implicitly through basic forms that anchored each proposal, even when future change was welcomed, and in the face of uncertainty. In contrast, the life cycle guideline proved more abstract and was not operationalised in concrete design decisions, although participants acknowledged its relevance. The balance between private and shared space was consistently treated as a spatial

and organisational key aspect, while engagement was approached with caution, particularly by those who felt that meaningful involvement cannot be designed without contact with actual residents. Still, some teams experimented with symbolic or landscape-referential elements intended to strengthen identity and invite long-term attachment.

During the focus group residents affirmed many of the workshop's intuitions, particularly regarding diversity and the value of robust spatial structures, yet they expanded these ideas by situating them within the rhythms, tensions and negotiations that characterise shared garden life. Diversity was understood not only as a spatial quality but also as aesthetic, ecological and social variation shaped by the culture of each court. Permanence was recognised in the enduring forms that persist through decades of incremental adjustments, confirming the relevance of stable frameworks. The discussion on life cycles brought a more nuanced and sometimes sceptical view: residents acknowledged their importance but questioned the extent to which they can or should be designed for, given cultural attachments, personal histories and demographic uncertainties. The balance between private and shared space surfaced as a core theme, closely tied to garden size, access, views and boundary clarity. Engagement, finally, was seen as both socially dynamic and institutionally fragile, grounded not only in everyday interactions but also in the governance structures established from the outset.

These combined insights show that design has the potential to support the long-term evolution of shared gardens when it operates in tandem with a clear governance model established by the community and aligned with the design of the garden itself. Although no strategy can guarantee particular outcomes, certain principles may help create conditions that prevent unnecessary adjustments while still allowing gardens to evolve through the ongoing negotiations between humans and non-humans. The design principles should therefore function as strategic orientations that work within these constraints, drawing on the combined capacities of design and governance to support gardens as evolving social-ecological environments.

5.4 Cultivating change

This section introduces the design principles that emerged from analysing how shared residential gardens evolve through the intertwined work of design and governance. Building on the patterns of transformation identified in Section 5.1 and the capacities outlined in Section 5.2, the research synthesised a set of guidelines that express how both domains can support the long-term evolution of shared residential gardens. These guidelines were subsequently tested and refined through the design workshop with professionals and the focus group with residents, which together offered additional insight into the conditions that enable change to be cultivated.

In this context, cultivating change refers to supporting first- and second-order transformations while reducing the need for third-order modifications that arise from misfit between design, use, governance, and ecological development. It involves anticipating foreseeable transitions, providing a compositional and organisational framework that can accommodate shifting circumstances, and welcoming the evolving needs and desires of human and non-human actors.

The following pages present the design principles grouped by guideline and illustrate each principle through examples drawn from the research sites. These examples are discussed in relation to observed practices, reported decisions, and spatial configurations identified through site-based investigations, showing how the principles are manifested or become recognisable within the studied gardens. (Figure 5.6)

X. *Guideline*

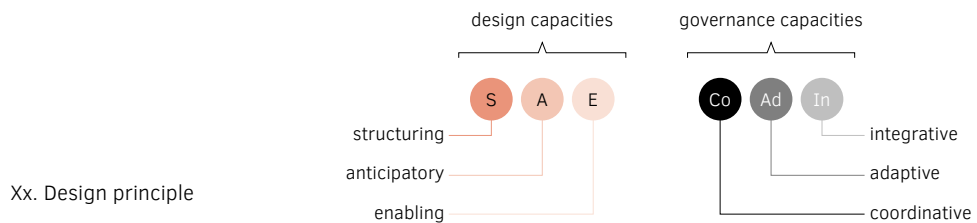


FIG. 5.6 Legend for interpreting the diagrams illustrating the principles associated with each guideline.

5.4.1 Designing for diversity

Designing for diversity involves creating spatial, programmatic, image, and ecological variety within the garden composition so that shared residential gardens can accommodate multiple uses, experiences, meanings, and habitat conditions over time, thereby reducing preventable modifications and supporting everyday stewardship.

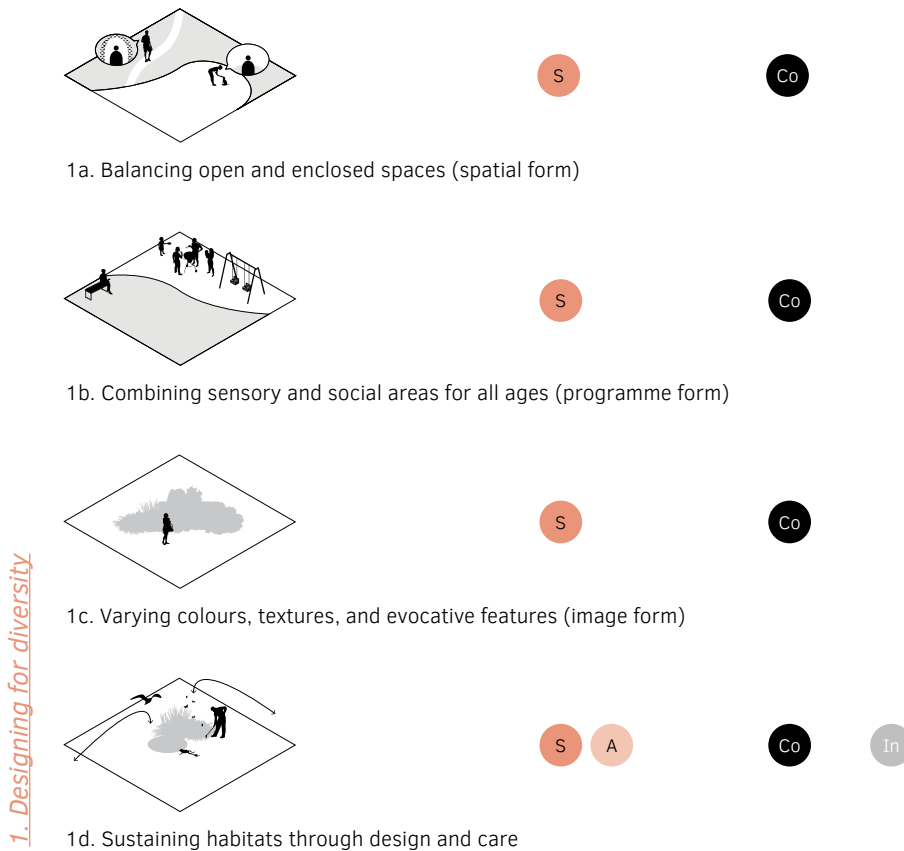


FIG. 5.7 Principles under the guideline 'Designing for diversity' and their linked design and governance capacities.

Four principles were developed under this guideline. These address different layers of the garden's composition and are presented as follows: **1a. Balancing open and enclosed spaces**, **1b. Combining sensory and social areas for all ages**, **1c. Varying colours, textures, and evocative features**, and **1d. Sustaining habitats through design and care**. (Figure 5.7)

A **Balancing open and enclosed spaces**

A garden should provide diversity in its spatial structures. The most fundamental expression of this diversity, repeatedly observed across the research sites, concerns the presence of both open and enclosed spaces. In the studied gardens, these two conditions were commonly understood as mechanisms for modulating light and views, while also shaping pathways and defining smaller rooms within the overall composition.

Appelhof, in the southern complex of Lanxmeer, illustrates this principle clearly. The more enclosed section of the garden forms an intimate entrance sequence from the street, offering privacy to the adjacent individual gardens. This area receives less light and is crossed by a gently curving path, which accentuates the contrast between the shaded threshold and the central lawn, where the garden opens up. The open area ensures access to sunlight and provides space for communal activities. Further into the garden, planting is again used to structure a smaller space where the playground is located. In this way, the balance between open and enclosed spaces organises the garden into distinct zones, regulates light and levels of privacy, invites different forms of use, and creates a more varied and engaging spatial experience. (Figure 5.8)



FIG. 5.8 Balancing open and enclosed spaces in Appelhof, Lanxmeer South complex, where a sequence of enclosed and open spaces frames movement, modulates visuals and light, and supports varied forms of use.

B Combining sensory and social areas for all ages

In shared gardens, it is important to ensure that spaces support activities of different intensities and respond to the needs of residents across age groups. This involves providing areas where sensory experience and everyday social life can coexist, allowing residents to move between quieter and more active settings according to their preferences. In De Kersentuin, this is expressed through a combination of spaces with distinct functions: the amphitheatre, which accommodates various communal activities; the central square, designed for small gatherings; the picnic table area, which supports outdoor meals and informal conversations; and quieter places for lingering and contemplation, such as the gazebo. A range of play features further complements this arrangement, including a double swing for older children and smaller wooden animal figures for younger ones. Together, these elements illustrate how programme diversity, even when expressed through specific and non-overlapping functions, can support a broad spectrum of uses and users over time. (Figure 5.9)



FIG. 5.9 Combining sensory and social areas for all ages in De Kersentuin, where spaces with distinct functions support communal activities, everyday encounters, play, and moments of quiet contemplation.

C Varying colours, textures, and evocative features

A shared garden is expected to offer a diverse visual and sensory character, expressed through a rich interplay of colours, textures and other evocative elements. In the Toon Hermanshof, in the Lanxmeer North complex, this is achieved through a varied planting palette that brings together contrasting scents, hues and surface qualities. Planting also contributes to the garden's evocative dimension, as in the single ash tree placed at the centre of the lawn or the grapevines climbing over the curved pergola. Together, these elements create an atmosphere that residents often describe as a pocket paradise, where sensory richness and distinctive features reinforce the garden's collective identity. (Figure 5.10)



FIG. 5.10 Varying colours, textures, and evocative features in Toon Hermanshof, Lanxmeer North complex, where planting diversity and selected symbolic elements create a rich and evocative garden atmosphere.

D Sustaining habitats through design and care

Non-human residents are simultaneously inhabitants of the garden, agents that shape its materiality, and contributors to the environmental conditions in which the garden exists. Shared gardens should therefore offer shelter and food for non-human species that support local ecological processes and connect the site to the wider landscape.

While human residents primarily inhabit a single courtyard, many non-human actors operate across a wider spatial range. Birds, pollinators, and other mobile species move between multiple gardens and surrounding green spaces, making their effective habitat larger than any individual garden. From this perspective, ecological diversity does not necessarily need to be maximised within each courtyard. Instead, diversity can emerge through differentiation between courtyards, where distinct planting structures, microclimates, and management practices together form a connected mosaic of habitats.

In this sense, sustaining habitats through design and care also depends on connectivity between gardens, allowing non-human actors to move between and benefit from complementary conditions across the wider landscape.

Across Lanxmeer, this principle is supported through shrubs and trees that provide edible resources, numerous bee-attracting flowering species, dead hedges, and the network of wadis that provide varied habitat conditions. Even Achterberghof, the smallest garden in the southern complex, incorporates these considerations through its apple and pear trees, which serve as food sources for birds, as well as through the small pond and adjacent shrubbery that provide habitat for amphibians.

These elements demonstrate how relatively modest interventions can sustain non-human life and reinforce the ecological dimension of shared residential gardens. Yet the endurance of these habitats depends not only on design decisions but also on practices of everyday care. Variations in pruning, mowing, soil disturbance, and seasonal maintenance can reinforce habitat conditions or, depending on their intensity and timing, modify or compromise them. In Achterberghof, for example, the lawn is mown only rarely, allowing moss to dominate in winter and creating moister ground conditions that benefit certain invertebrates. Sustaining habitats therefore requires collaboration between design and maintenance, in which spatial and ecological intentions are supported by caretaking practices attentive to the fragility and needs of local species. (Figure 5.11)

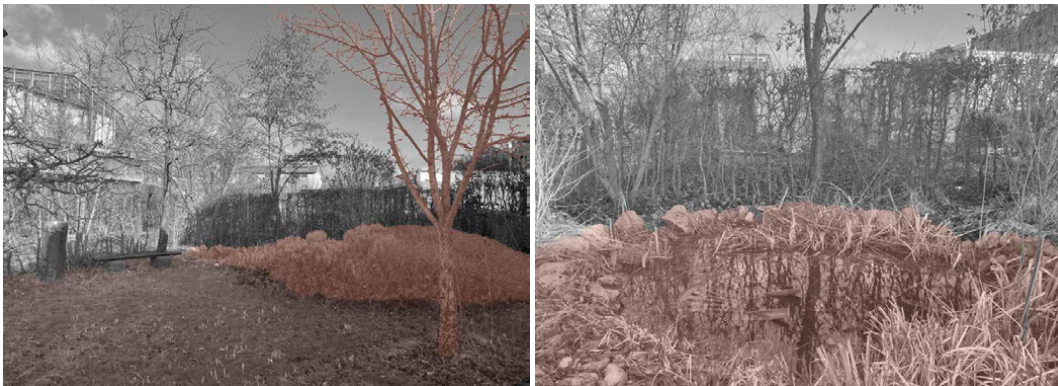
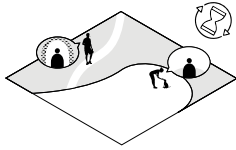


FIG. 5.11 Sustaining habitats through design and care in Achterberghof: fruit trees, a small pond, and adjacent shrubbery provide habitat opportunities, while low-intensity mowing supports these habitats.

5.4.2 Supporting change through permanence

Sustaining diversity over time involves designing with the garden's temporal evolution in mind while enabling community governance to maintain, adapt and renew spatial, programmatic, image and ecological forms as they change.

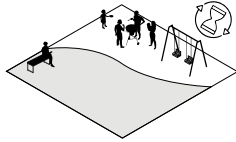
A set of four principles guides this theme, each engaging a distinct form of the garden's composition. They unfold as follows: **2a. Sustaining spatial diversity over time, 2b. Sustaining programme diversity over time, 2c. Sustaining image diversity over time, and 2d. Preserving the basic form.** (Figure 5.12)



2a. Sustaining spatial diversity over time

A

In



2b. Sustaining programme diversity over time

A

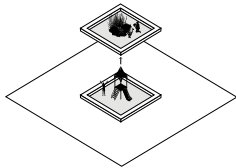
In



2c. Sustaining image diversity over time

A

In



2d. Preserving the basic form

S

Ad

FIG. 5.12 Principles under the guideline 'Supporting change through permanence' and their linked design and governance capacities.

A Sustaining spatial diversity over time

Spatial variation over time is most often sustained in the studied gardens through the intentional maintenance of the spatial characteristics established in the original design. Through deliberate acts of gardening, communities shape the garden so that open and enclosed spaces continue to coexist, even as these spaces shift with processes of growth and ageing. Clear examples can be found in Lanxmeer, such as the ongoing pruning of willows in Waterhof within the southern complex, or the strategic removal of trees in Nesciohof within the northern complex following two decades of maturation.

Sustaining this diversity can also be supported through anticipatory design, which considers how spatial structures are likely to change as vegetation and materials evolve. In De Kersentuin, for instance, willow arches provided a temporary spatial structure during the early years of the garden, while the pocket forest gradually developed into a more permanent enclosure. In some cases, spatial change is further supported by retaining a core spatial structure that remains stable as other elements shift. Appelhof illustrates this condition: its clear organisational framework enables spatial adjustments to unfold without compromising legibility, thereby clarifying and facilitating maintenance over time.

B Sustaining programme diversity over time

Programme diversity in the studied gardens is maintained through three distinct strategies. The first is providing an extensive range of spaces and facilities that support both active and quieter activities for residents of all ages, as seen in De Kersentuin. In a large community where resident turnover is likely to occur, such breadth ensures that different forms of use remain relevant over time. The second strategy is offering multifunctional spaces. In Watertorenhof, within the Lanxmeer South garden complex, a central lawn served as a free-play area and also functioned as the setting for community celebrations, when residents stretched a large covering between the surrounding trees to create a temporary sheltered space. The third strategy involves replacing spaces to adjust the programme to new needs as the community evolves. In Nesciohof, within the Lanxmeer North garden complex, the large sandpit was replaced with a planting bed once most children had grown up and in the context of limited turnover. As a result, the former playground was transformed into a hobby area used primarily by adults and older residents.

C Sustaining image diversity over time

In the studied gardens, image diversity over time is supported through everyday gardening practices that mediate the ongoing negotiation between plant growth and decline, material weathering, and the aesthetic and symbolic preferences of residents. Design plays a central role in this process, as the original image form provides a reference that can guide later decisions. When the image form is evocative and draws on recognisable representations of nature, it offers residents a clearer sense of what should be preserved, allowing them to replace plants or materials in ways that maintain the intended diversity of atmosphere rather than gradually homogenising it. In De Kersentuin, for example, the thematic sectors carry park-like, forest-like, permacultural and horticultural expressions that help sustain a varied garden identity as it matures. Sustaining image diversity also involves allowing incremental adjustments that give residents opportunities to express their own

identities within the garden. In Watertorenhof, such increments included the addition of a celebration totem and the planting of a cherry tree brought from a resident's former garden, both of which reinforce meanings valued by the community without altering the underlying image structure of the garden.

D Preserving the basic form

The basic form of the garden should be understood as the frame that remains in place over time, providing the structure for the garden to evolve. Across the studied gardens, residents consistently maintained the proportions, axes and organising lines that defined the fundamental geometry and layout of the original plans, even as adjustments occurred in the spatial, programme and image forms. This enduring underlying structure can also draw on the anticipatory capacity of design. In De Kersentuin, for example, the design of the Bessentuin and Vlinderhof sectors incorporated modular units that could either be planted with berry shrubs and used as gardening space or serve as parking bays, depending on the needs of the community over the years. Preserving the basic form in this way provides a stable framework that supports both continuity and adaptation, enabling the garden to accommodate change without losing its overall coherence.

5.4.3 Navigating life cycles

Navigating life cycles involves designing with awareness of how social, ecological, and material cycles unfold over time, so that structures, age-specific uses, planting, and material choices can support one another as the garden evolves. This guideline is articulated through two principles that address the temporal relations between different actors and elements in the garden: **3a. Working with intersecting material and plant timelines** and **3b. Working across household and ecological timelines**. Although the workshop and focus group revealed uncertainties about how to operationalise these principles in practice — with participants noting the difficulty of anticipating long-term developments and the risk of appearing overly deterministic — the research findings show that attending to these temporal intersections can meaningfully support garden evolution. The examples discussed below demonstrate how designing with temporal rhythms in mind can facilitate timely transformations without predetermining their outcomes. Navigating life cycles therefore remains relevant as a way of offering a framework within which communities can recognise likely shifts, discuss them in advance, and adapt spaces gradually if they choose to do so, while still accommodating uncertainty. (Figure 5.13)

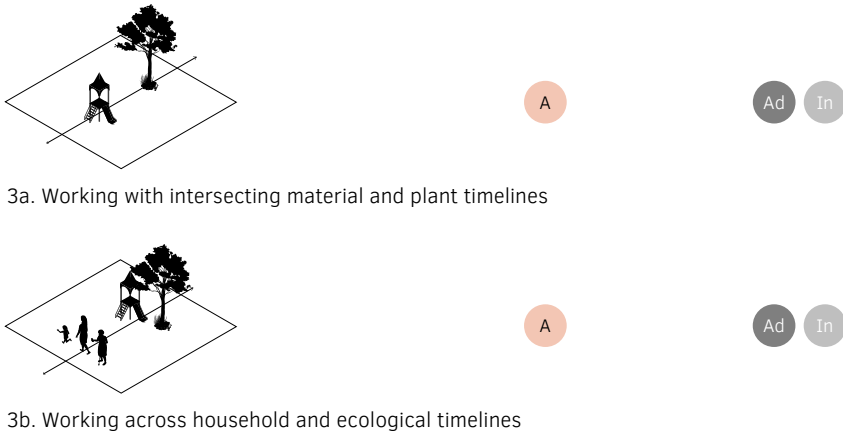


FIG. 5.13 Principles under the guideline 'Navigating life cycles' and their linked design and governance capacities.

A Working with intersecting material and plant timelines

Working with intersecting material and plant timelines involves designing with an awareness that vegetation and materials age, transform, and decline at different rates, and that these differences can be used intentionally to support long-term spatial evolution. This principle recognises that some materials may offer only temporary structure, while plants may require years to establish and mature.

In De Kersentuin, this alignment between material and plant cycles was particularly effective. During the early years, the space in the Kriekenbos was structured by woven willow arches that provided an immediate sense of enclosure while remaining lightweight and short-lived. As these willow structures gradually deteriorated, the trees and shrubs planted within the sector matured and thickened, eventually forming a small forest that now defines the area's atmosphere. Here, the gradual decay of the willow arches created the conditions for the maturing vegetation to assume their structural role, resulting in a coherent transition from temporary enclosure to a more permanent vegetated form. (Figure 5.14)



FIG. 5.14 Working with intersecting material and plant timelines in the Kriekenbos, where short-lived willow arches gradually gave way to maturing vegetation that now defines the enclosure of the space. (Adapted from photographs provided by Vereniging De Kersentuin)

B Working across household and ecological timelines

Working across household and ecological timelines involves selecting plants and materials whose longevity aligns with anticipated shifts in family composition and patterns of use. In several Lanxmeer courtyards, children’s play structures such as sandpits were built in wood, a material that weathers quickly and is therefore suited to short-lived phases of intense use. This proved especially appropriate given that most original households were young families and that turnover remained relatively low, meaning that the number of children naturally decreased as residents moved through similar life stages. As these structures deteriorated, they could be reduced, repurposed, or removed with minimal effort, allowing the garden to adjust to changing needs without major intervention.

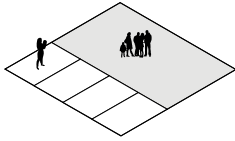
By contrast, in larger communities with higher turnover, such as De Kersentuin, it is often more appropriate to use longer-lasting materials in playgrounds, since play areas are more likely to remain relevant across successive resident groups. Designing with these temporal differences in mind ensures that plant and material cycles support, rather than hinder, the evolution of garden use over time. (Figure 5.15)



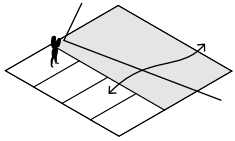
FIG. 5.15 Working across household and ecological timelines in Nesciohof, Lanxmeer North complex, where a wooden sandpit was replaced with a planting bed as most children grew up and left the courtyard. (Photograph on the left adapted from BEL, n.d.)

5.4.4 **Balancing private and shared**

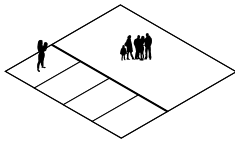
Balancing private and shared involves arranging and defining the relationship between individually controlled outdoor spaces — such as private gardens, façade zones, or terraces — and the shared garden, so that boundaries, proportions, and access support both everyday use and the long-term governance of the shared space. This guideline unfolds across four principles: **4a. Balancing private–shared proportions**, **4b. Positioning shared gardens for visibility and access**, **4c. Clarifying private and shared boundaries**, and **4d. Allowing household boundary heterogeneity while moderating shared-side coherence**. (Figure 5.16)



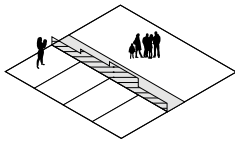
4a. Balancing private–shared proportions



4b. Positioning shared gardens for visibility and access



4c. Clarifying private and shared boundaries



4d. Allowing household boundary heterogeneity while moderating shared-side conherence



FIG. 5.16 Principles under the guideline 'Balancing private and shared' and their linked design and governance capacities.

A Balancing private–shared proportions

Balancing private–shared proportions involves ensuring that the shared garden is noticeably larger than the individual outdoor spaces, so that it stands as an attractive and meaningful setting for collective use. In De Kersentuin and in most of the gardens in Lanxmeer, for example, compact private gardens are paired with spacious shared areas that function as the main outdoor environment for everyday activities. Vrijburcht follows the same idea, with a large atrium garden that clearly outweighs the individual outdoor spaces along the galleries. In addition to surface ratio, an appropriate number of dwellings per garden contributes to this balance. For shared gardens the size of Lanxmeer's, groups of roughly 20 to 30 households

offer sufficient capacity for collective care while remaining small enough to keep governance practical. Together, these proportional considerations help establish a shared garden that is both desirable to use and feasible to maintain. (Figure 5.17)



FIG. 5.17 Balancing private–shared proportions in Lanxmeer, showing the contrast between small private gardens (striped) and the larger shared space (coloured). (Photograph extracted and adapted from Rozendaal, 2025)

B Positioning shared gardens for visibility and access

Positioning shared gardens for visibility and access involves locating them so that residents see and cross these spaces on a daily basis. When the shared garden forms a natural pathway or a recurring visual presence, it becomes more relevant and encourages regular interaction among neighbours. In the northern courtyards of Lanxmeer, this is achieved by placing the main entrances of several dwellings along internal pedestrian streets, meaning that residents reach their homes through the shared garden. The same principle is applied across all sectors of De Kersentuin, where circulation routes consistently lead residents through public and semi-public spaces. Vrijburcht adopts a similar strategy in vertical form: the internal atrium garden is visible both from ground-floor corridors and from the upper-level galleries, making it a constant element in residents' daily experience. As a design principle, ensuring visibility and everyday access strengthens the role of the shared garden as a lived environment rather than a peripheral amenity. (Figure 5.18)



FIG. 5.18 Positioning shared gardens for visibility and access in Vrijburcht, where the central atrium garden is overlooked from ground-floor corridors and upper-level galleries.

C Clarifying private and shared boundaries

Clarifying private and shared boundaries involves making the limits of private and collective spaces legible through design. Clear boundaries help distribute responsibilities, support everyday management, and reduce the potential for conflict, particularly in gardens where private and shared areas are physically or visually intertwined. In many sectors of Lanxmeer and De Kersentuin, this clarity is achieved through hedges, low planting edges, or shallow ditches that gently articulate the transition between household spaces and the shared garden. Vrijburcht offers an architectural variation of the same principle: along the access galleries, the boundary between each household's individual outdoor area and the shared circulation space is marked by a line aligned with the rainwater drainage pipes. While design delineates these limits, governance documents and community practices must reinforce them, ensuring that boundaries remain understood, respected, and workable over time. (Figure 5.19)



FIG. 5.19 Clarifying private and shared boundaries in Vrijburcht, where rainwater pipes mark the threshold between individual outdoor areas and the gallery's circulation area.

D Allowing household boundary heterogeneity while moderating shared-side coherence

Allowing household boundary heterogeneity involves recognising that the interface between individual outdoor areas and the shared garden is inherently subject to personalisation, and designing with this variability rather than against it. The diverse ways in which residents adjust their boundaries can be embraced, as seen at Kassenhof in the Lanxmeer South complex, where individually shaped hedges contribute to an expressive edge condition. Vrijburcht, where the shared space extends to the façades, adopts a similar approach by allowing residents to personalise the portions of the gallery adjacent to their homes — an agreement established from the outset.

Another strategy is to regulate the aspects of the boundary that directly affect the shared garden. In De Kersentuin, for example, the species used for hedging are fixed in the design and protected in governance documents, ensuring a coherent shared-side appearance across the neighbourhood. At the same time, residents can influence aspects such as hedge height through the garden committee, creating a

balance between collective consistency and individual preference. Boundaries can also be approached as three-dimensional structures, with individual personalisation restricted to the household-facing side. This is exemplified in Lodewijk van Deysselhof, in the Lanxmeer North complex, where buffer zones create a layered boundary that accommodates variation without compromising the overall coherence of the shared garden. (Figure 5.20)

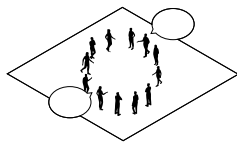
These strategies are therefore not merely aesthetic choices, but mechanisms through which design intentions, household preferences, and governing agreements work together to maintain boundaries that remain legible and workable over time.



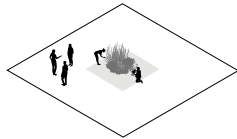
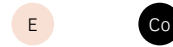
FIG. 5.20 Allowing household boundary heterogeneity in the hedges of Kassenhof (top), while moderating shared-side coherence through a buffer zone in Lodewijk van Deysselhof (bottom).

5.4.5 Fostering engagement

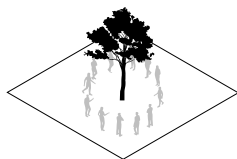
This guideline concerns designing and governing shared gardens in ways that support community engagement over time by creating conditions in which residents can develop a sustained relationship with the garden. It emphasises the collaborative role of design and governance in aligning participatory opportunities, everyday practices of care, and the agency of both human and non-human actors. The guideline unfolds across three principles: **5a. Designing frameworks for participation**, **5b. Facilitating long-term care**, and **5c. Co-creating community totems**. (Figure 5.21)



5a. Designing frameworks for participation



5b. Facilitating long-term care



5c. Co-creating community totems



5. Fostering engagement

FIG. 5.21 Principles under the guideline 'Fostering engagement' and their linked design and governance capacities.

A **Designing frameworks for participation**

This principle addresses the designer's responsibility to take an active and reflective position in relation to participatory processes, recognising that participation can take different forms and occur at different moments throughout the life of a project. Participation during the design process may unfold at varying intensities and stages, ranging from consultation to co-design, when a governing community is able to engage with early design decisions. In contexts where such engagement is possible, early involvement can support the alignment of spatial decisions with shared values and with emerging governance arrangements. Under these conditions, the long-term evolution of shared residential gardens gains additional support as design and governance develop in parallel rather than sequentially.

At the same time, many shared residential gardens are designed and constructed before future residents are known, rendering direct participation at the outset impracticable. Designing frameworks for participation in these cases does not imply suspending design decisions, but rather shaping the garden in ways that can accommodate future collective negotiation and adjustment. This may involve leaving certain quantitative or programmatic aspects open to later deliberation, or configuring spaces so that they can host discussion, adaptation, and incremental modification once the community begins to inhabit and manage the site. An example of this can be found in De Kersentuin, where a flexible spatial layout enabled residents to collectively determine and later adjust the number of parking spaces during and after implementation.

Across the cases studied, participation emerges not as a singular event but as a process that unfolds over time, supported by design decisions that recognise future collective agency while maintaining spatial coherence. Examples include periodic planning meetings in which residents collectively discuss adjustments to the garden, as well as ongoing collective gardening practices through which decisions are negotiated in use, allowing participation to be embedded in the everyday life of the garden rather than confined to a single design moment.

B Facilitating long-term care

Facilitating long-term care involves designing with full attention to the interests, resources and skills of the community governing the garden. This is reflected in choices such as selecting plant species that require more or less maintenance effort; locating and configuring gardening areas that support activities beyond mowing and pruning; and specifying structures and objects whose upkeep aligns with the community's capacities and financial means. Many of the strategies discussed earlier that relate to the enabling capacity of design also contribute here, since supporting long-term care depends on aligning design intentions with what the community is realistically able and willing to sustain.

This principle also has a complementary dimension that concerns non-human context setters. Sunlight, rainwater, soil and wind interact to establish the landscape conditions under which the garden exists, shaping where certain species can thrive and how the garden behaves over time. Designing in relation to these forces can reduce maintenance demands and limit preventable adjustments, allowing ecological processes to support, rather than undermine, the daily work of garden care.

C Co-creating community totems

Co-creating community totems involves supporting the emergence of shared reference points that help anchor collective identity and engagement within the garden over time. In this context, totems are understood not as symbolic objects with predefined meanings, but as spatial elements that can gradually acquire shared significance through use, care, and repeated collective experience. By offering evocative features that invite appropriation, design can help establish early points of connection between residents, the garden, and one another. This is particularly important in the initial phases of a project, when neighbours may not yet know each other well and communal life is still in formation.

Totems can emerge through different design strategies. One approach is to draw upon existing natural or built features in the surroundings and allow them to function as anchoring references for the shared garden. In Watertorenhof, in the Lanxmeer South complex, the water tower plays this role: views towards the tower are deliberately protected, and this shared concern has mobilised residents to collectively safeguard sightlines to it from within the garden. In Het Kwartel, in the Lanxmeer North complex, the water retention pond serves a similar function. Residents place importance on maintaining visual access to the water from their homes, and discussions about the positioning of the statue within the garden were closely tied to its relationship with the pond.

Another approach is to introduce a distinctive feature within the garden itself. The undulating wall in Vasalishof and the single tree encircled by communal seating in Toon Hermanshof, both in the Lanxmeer North complex, illustrate how design can provide elements that residents later adopt as shared points of identification. In both cases, these features also function as temporal references: the wall operates as a stable spatial constant against which the growth and transformation of the surrounding garden can be observed, while the tree embodies the passage of time through its growth and seasonal change. (Figure 5.22)

When successful, such features become genuine community totems: recognisable, valued, and cared for collectively, thereby supporting engagement and a sense of belonging as the garden evolves.

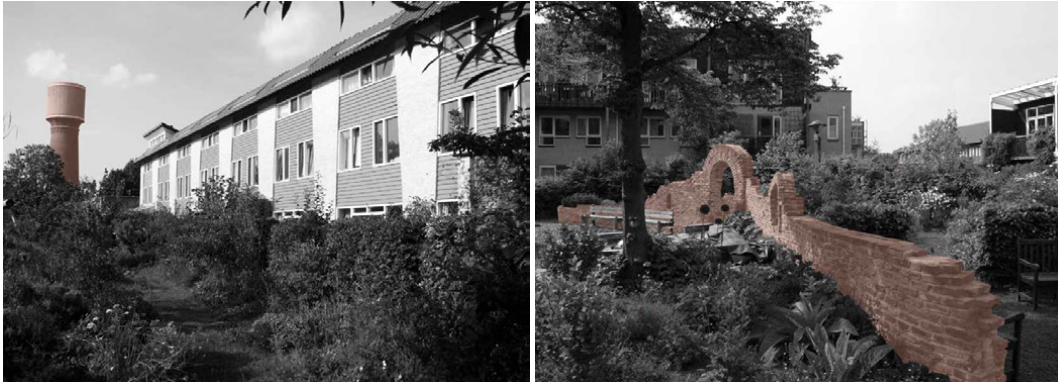


FIG. 5.22 Co-creating community totems in Watertorenhof and Vasalishof, where distinctive features such as the water tower and the undulating wall strengthen collective identity. (Photographs adapted from BEL, n.d.)

5.5 On the design principles, their potential and limitations

The design principles presented in this chapter were derived through a sequence of analytical and interpretive steps. The findings from the analyses in Chapters 3 and 4 were synthesised into five foundational guidelines that reflect the combined capacities of design and governance. These guidelines were subsequently explored through a design workshop and refined in a focus group with Lanxmeer residents, offering complementary insights into their generative potential in practice and their resonance in lived experience. Sets of three to four principles were then developed under each guideline.

The first guideline, **designing for diversity**, shows how spatial, programmatic, image and ecological variation can support shared gardens by reducing modifications that arise from misfit and by offering multiple ways for the garden to be used, inhabited and cared for. It also emphasises the environmental value of sustaining habitats through design and maintenance, ensuring that gardens support local ecological processes and the non-human actors that contribute to them.

The second guideline, **supporting change through permanence**, highlights the framing role of composition, particularly the basic form, and the importance of sustaining spatial, programmatic and image diversity as gardens mature. Its principles demonstrate how stable compositional structures can accompany growth, ageing and material decline while still allowing for adaptation. They also show how a clear spatial structure can facilitate governance, making it easier for residents to negotiate responsibilities and maintain coherence as the garden evolves.

The third guideline, **navigating life cycles**, addresses the differing temporalities of plants, materials and households. The two principles developed under this guideline illustrate how design can work with intersecting material and plant timelines, and how it can also respond to shifts in household composition as they converge with ecological and material change. Rather than predetermining outcomes, these principles offer ways to prepare for plausible transitions and support timely adjustments when communities choose to undertake them.

The fourth guideline, **balancing private and shared**, considers how proportions, positioning, and boundary design shape everyday engagement and the feasibility of long-term management. Its principles encourage arrangements that ensure the shared garden remains visible, legible and accessible, while clarifying boundaries in ways that support governance. At the same time, they recognise that household-level variation is inevitable and can be accommodated, provided that shared-side coherence is intentionally moderated.

The fifth guideline, **fostering engagement**, concerns the conditions through which residents develop a sustained relationship with the garden. Its principles emphasise the role of participatory opportunities, the alignment between design intentions and residents' capacity for long-term care, and the contribution of evocative features that may support identification with the place. The guideline also highlights the need to recognise the agency of non-human context setters, so that design works with environmental actors rather than against them, thereby supporting ecological functioning and easing the demands of ongoing care.

Taken together, these guidelines and principles illustrate how design can contribute to cultivating change when embedded within wider systems of governance, everyday practices and ecological processes. They offer strategic orientations rather than prescriptive solutions, supporting designers and communities in anticipating foreseeable transitions, reducing unnecessary adjustments linked to misfit, and creating forms that can accommodate ongoing negotiation between human and non-human actors. Their potential lies in establishing conditions that make long-term evolution more coherent, more grounded and less dependent on costly retrofits.

At the same time, the principles have limitations. They cannot resolve demographic unpredictability, interpersonal dynamics or the broader institutional and municipal forces that shape residential environments. However, they move beyond simply identifying permanent elements while leaving the rest to governance contingencies, or treating adaptable areas as generic, undifferentiated spaces. Instead, they engage directly with compositional forms and their layers, working in collaboration with governance processes and with the technical and ecological dimensions of garden life. In doing so, they support forms of design and governance that remain attentive to transformation without assuming that change can be fully controlled or wholly designed.

6 Synthesis and outlook

This chapter brings together the main insights of the dissertation and reflects on their wider implications for research, practice, and the discipline. It first offers an overview of the research trajectory by synthesising the findings and revisiting the research questions in relation to the methodological, empirical, and design-oriented developments of the study. It also articulates the academic and societal contributions that emerge from these results. It then presents a set of reflections that situate the contribution of the research within broader debates on shared gardens, commons, and landscape transformation, and includes a reflection on the research strategy and approach, clarifying how field-based engagement and methodological choices shaped what could be observed and interpreted. The chapter concludes by outlining the boundaries that frame the scope of the study and by identifying pathways for future work, opening the discussion towards the continued relevance of cultivating change in landscape architecture.

6.1 Research overview

This section provides an overarching view of the research trajectory by bringing together the methodological development, empirical analyses, and design-oriented synthesis that structure the dissertation. It summarises the main findings derived from tracing landscape transformation across three shared residential garden contexts, highlighting how patterns, processes, and orders of change emerge through the interaction of design, governance, and social–ecological dynamics. The section then revisits the three research sub-questions, clarifying how each was addressed and how, together, they substantiate the answer to the main research question. Finally, it articulates the academic and societal contributions of the research, making explicit how the findings advance theoretical understanding and inform practice in the design and governance of residential green commons.

6.1.1 Summarising findings

The research traced landscape transformation in shared residential gardens as living environments where design, governance and social-ecological dynamics continuously interact. This required the development of a new methodology that combined and re-interpreted existing design and governance methods, enabling the investigation to explore how such knowledge can inform garden design and governance in support of the long-term evolution of gardens as residential commons.

The analytical approach was refined iteratively, integrating a diachronic study of spatial composition with an examination of the properties of human and non-human actors and the interactions that connect them within the garden environment. This made it possible to interpret transformation not only as a physical process but also as one shaped by diverse motivations, routines, and negotiations involving both humans and non-humans over time. Through this lens, gardens emerged as places where design intentions meet the realities of social-ecological inhabitation and maintenance, giving rise to continuous reconfiguration. This methodology was applied to the 14 shared courtyard gardens of Lanxmeer, revealing where, when, why, and how they changed, which actors were involved, and which compositional forms were affected. The additional research sites — De Kersentuin and Vrijburcht — added nuance by showing how transformation differs when spatial configurations, ownership arrangements and governance structures vary.

These findings enabled the distillation of patterns of transformation, comprising the objects, temporalities, agents, drivers, and settings through which change unfolds. Plants, everyday increments and shifting transition zones show how shared gardens change continually through the interplay between ecological evolution and residents' adaptations. Early adjustments during implementation give way to a quieter phase of ecological maturation and routine governance, before more substantial cycles of renewal emerge as social needs shift and materials and vegetation age. Change arises from the intertwined actions of residents, external human actors, plants, urban fauna and other biotic and abiotic non-humans. Their combined influences continually reshape spatial and material conditions, while design and governance mediate how these diverse agencies are negotiated over time. These changes are driven by evolving patterns of use, experience and meaning; by the community's variable capacity to maintain and engage with the space; by the life cycles of biotic and abiotic components; by changes in household composition; and by the overlapping pressures that these temporalities generate.

Altogether, transformation occurs in settings where formal and informal interactions co-exist and is most effectively supported when clear governance structures organise collective care from the outset and when the compositional framework provides a stable yet adaptable setting in which spatial, material and social change can unfold coherently.

These patterns reveal that shared gardens evolve through changes driven by natural development and wear, through adjustments and repairs that deepen residents' engagement and sustain the garden's relevance, and through redesigns that often reflect misfits between the garden's composition, its governance arrangements, and evolving social–ecological needs. Distinguishing these three orders of transformation underscores the need to cultivate the former two while mitigating the latter in order to support coherent long-term evolution.

Interpreting these findings in practical terms required discussing the implications of landscape transformation for garden design and garden governance as two collaborating domains. This interpretation led to the identification of how design can cultivate change through its structuring, anticipatory and enabling capacities, while governance does so through its coordinative, adaptive and integrative capacities. The three capacities of design establish the spatial and conceptual foundations through which change unfolds, while the three capacities of governance support the everyday negotiation, adjustment and collective action involving humans and non-humans that keep the garden functional and meaningful.

These mutually reinforcing capacities informed the development of five guidelines underpinning the design principles: designing for diversity; supporting change through permanence; navigating life cycles; balancing private and shared; and fostering engagement. Their practical applicability was explored in the design workshop with professionals, and their resonance with residents' lived experience was discussed in the focus group at Lanxmeer. This process of testing and validation grounded the formulation of principles for cultivating change, showing how design and governance can work together to support the garden's evolution while leaving room for uncertainty.

6.1.2 Revisiting research questions

Three research sub-questions structure the trajectory of the dissertation. Each corresponds to a distinct stage of the investigation, and together they provide the foundation for addressing the main research question.

1 **How can methods for analysing design composition, actors, and interactions be integrated to investigate change in shared residential gardens over time, while accounting for social and ecological interconnections?**

An integrated analytical methodology was iteratively developed by combining diachronic compositional analysis with analyses of actors and interactions, supported by content analysis. The diachronic compositional analysis focused on design composition over time and was conducted through the examination of original design plans, complemented by the reconstruction of garden layouts based on residents' accounts and repeated field visits. The analysis of actors was conducted through stakeholder analysis, considering dimensions such as power, interest, influence, and participation in garden transformation. Interactions were analysed according to their nature and direction. They were characterised as formal or informal, and planned or reactive, and were examined in terms of whether they occurred vertically, between residents and external actors or institutions, or horizontally, within the governing community itself. This analytical work was supported by content analysis of interview transcripts and fieldwork reports, and was further complemented by historical photographs and aerial imagery.

By adapting the four-form method to a temporal framework, extending stakeholder analysis to include non-human actors, and incorporating both formal and informal interactions into a broader reading of negotiation processes, a coherent approach for tracing transformation in shared residential gardens was established. This methodology provided the analytical backbone for the empirical chapters that followed.

This question was addressed in Chapter 2, with an overview of the methodological framework presented in Section 2.5. A critical reflection on the methodological approach and its implications is presented later in Section 6.2.3.

2 What compositional changes, along with their drivers, processes, and temporal–spatial characteristics, underpin the evolution of shared residential gardens over time?

Applying the developed methodology to the three research sites, Lanxmeer, De Kersentuin, and Vrijburcht, revealed how garden compositions evolved through the interplay of social practices, ecological processes, and governance arrangements. Changes were examined in terms of where, when, why, and how they occurred, the actors involved, and the compositional layers affected.

Interpreting these results led to the identification of patterns of transformation related to objects, temporalities, agents, drivers, and settings of transformation, the latter encompassing both garden composition and the governing community. From these empirically derived patterns, three orders of transformation were distinguished.

First-order transformations arise from ongoing natural development, including plant growth, seasonal variation, regeneration, and the gradual ageing of materials through weathering and everyday use. Second-order transformations occur when residents adapt, maintain, or refine the garden in response to evolving routines, preferences, and meanings, working within the existing spatial and organisational framework. Third-order transformations involve substantial redesign or spatial reorganisation, typically indicating a misalignment between garden composition, governance arrangements, community needs, and site conditions, often following an accumulation of unresolved tensions. When design and governance collaborate to support first- and second-order transformations, shared gardens are able to evolve coherently over time. Third-order transformations, by contrast, require more disruptive interventions that place increased pressure on governance arrangements and continuity of care.

This question was addressed through the empirical analyses presented in Chapters 3 and 4. Chapter 3 examined the 14 shared gardens in Lanxmeer, while Chapter 4 extended the analysis to De Kersentuin and Vrijburcht, demonstrating how similar patterns of transformation emerged under different spatial configurations, ownership conditions and governance structures, while highlighting context-specific differences. The results were synthesised in Section 5.1, which articulated the overarching patterns of transformation and clarified the distinction between cultivable and disruptive forms of change.

3 What principles can be formulated to cultivate change through the design of residential green commons?

To derive principles capable of supporting first- and second-order transformations, the practical implications of landscape transformation for garden design and governance were examined. Reflection on the identified patterns and orders of change led to the articulation of interrelated capacities of design and governance. Garden evolution is supported through the structuring, anticipatory, and enabling capacities of design, alongside the coordinative, adaptive, and integrative capacities of governance.

Building on this foundation, five guidelines were formulated: designing for diversity; supporting change through permanence; navigating life cycles; balancing private and shared; and fostering engagement. These guidelines were refined through a design workshop with practitioners and researchers and a focus group with residents from Lanxmeer. Principles were subsequently developed under each guideline, articulating how design can work alongside governance to cultivate change by anticipating foreseeable transitions, limiting avoidable adjustments, and supporting ongoing negotiation between human and non-human actors. In doing so, the principles clarify how design can establish conditions that allow shared residential gardens to remain meaningful and relevant over the long term.

The capacities of garden design and governance derived from empirical insights were discussed in relation to the literature in Section 5.2. The process of drafting, testing, and positioning the guidelines in relation to existing literature was elaborated in Section 5.3, while the principles were presented and illustrated through examples from the studied gardens in Section 5.4. A critical reflection on their potential and limitations is provided in Section 5.5.

Together, these three sub-questions frame and substantiate the answer to the main research question: **How can insights from landscape transformation in shared residential gardens inform the design of residential green commons that accommodate evolving social-ecological needs?**

By integrating methodological development, empirical investigation, and design-oriented synthesis, the research demonstrates that understanding the layered dynamics of transformation across spatial, social, and ecological dimensions provides a foundation for designing shared gardens capable of accommodating change over time without requiring continuous or disruptive redesign.

6.1.3 Academic and societal contributions

This research contributes to both academic debate and societal practice by advancing an empirically grounded understanding of how shared residential gardens evolve over time, and by clarifying how design and governance shape this evolution. The contribution of the study lies in articulating the processes, capacities, and conditions through which change is cultivated in residential green commons, based on long-term observation of lived landscapes.

Academic contribution

The research contributes to landscape architecture and related fields by establishing shared residential gardens as a relevant and distinct research object. By analysing these gardens as inhabited, collectively governed, and evolving environments, the study situates landscape within long-term socio-spatial processes shaped by design decisions, everyday practices, and social–ecological dynamics.

A central academic contribution is the development and application of an integrated analytical methodology that combines diachronic compositional analysis with the analysis of actors and interactions, including non-human agency. This approach enables transformation to be examined as a layered and negotiated process unfolding across multiple temporalities and material conditions, offering a way to study everyday landscapes that are rarely addressed through conventional design analysis or post-occupancy evaluation.

The research further contributes to theory building through the articulation of patterns and orders of transformation, and through the identification of interrelated capacities of design and governance. Distinguishing between structuring, anticipatory, and enabling capacities of design, alongside coordinative, adaptive, and integrative capacities of governance, advances a relational understanding of landscape practice in which spatial form, maintenance, and collective organisation are analytically inseparable. This conceptualisation provides a framework for understanding how design and governance jointly shape landscape evolution over time, contributing to broader theoretical discussions on temporality, commoning, and the role of design beyond the moment of implementation.

Finally, the formulation of design principles grounded in empirical analysis contributes to landscape architectural theory by demonstrating how design knowledge can be derived from the long-term study of lived environments. The principles function as analytical and conceptual tools that connect empirical insight to design thinking, supporting reflection on how landscapes can be structured to accommodate change over time.

Societal contribution

The societal contribution of the research lies in its capacity to inform how shared residential gardens are designed, inhabited, and governed over extended periods. By documenting post-occupancy dynamics in existing housing developments, the study brings attention to the often-invisible work through which residents, designers, plants, and other non-human actors collectively sustain shared spaces.

The findings address a recurring question in practice concerning the influence of design and design expertise within private and semi-private residential contexts after initial implementation. By tracing how early design decisions continue to shape use, maintenance, and governance over time, the research clarifies the enduring role of design in supporting or constraining everyday adaptation. In doing so, it provides a basis for understanding residential green commons as landscapes that require ongoing spatial and organisational support.

In addition, the study contributes to societal debates on collective living by framing commons as a design assignment. It shows how shared landscapes can be deliberately structured to support collective care, negotiation, and long-term engagement, and how design can help align spatial form, ecological processes, and community capacity. The design principles developed in this research support dialogue between residents, designers, and institutions by offering a shared vocabulary for reflecting on spatial arrangements, maintenance practices, and governance structures as interconnected conditions for sustained use.

More broadly, the research contributes to discussions on sustainable living environments by demonstrating how long-term engagement with shared gardens depends on the alignment of spatial design, ecological dynamics, and collective capacity. By focusing on everyday residential settings, the study highlights shared gardens as sites where social and ecological relations are continuously negotiated, and where design plays an active role in shaping the conditions for long-term care and coexistence.

6.2 Reflections

This section offers a set of reflections that expand on the conceptual, methodological and disciplinary implications of the study. It begins by revisiting shared residential gardens through the lenses of landscape theory, commons scholarship and transformation, situating the empirical findings within broader conversations in landscape architecture. It then reflects on the research approach adopted in this study, clarifying how field-based engagement and ethnographically informed strategies shaped what could be observed and interpreted. Building on this, the section examines the methodological choices related to compositional forms, actors and interactions, and reflects on their analytical implications. Finally, it explores how the insights developed through this research may extend beyond the studied gardens to other urban commons and landscape typologies. Together, these reflections frame the contribution of the study and orient the discussion towards the boundaries and pathways forward that follow.

6.2.1 On shared gardens, commons, and transformation as a lens

The research invited a renewed reflection on shared residential gardens as objects of inquiry. These gardens revealed themselves as dense social–ecological settings in which everyday practices, living materials and design intentions continually intersect. Working with them empirically required acknowledging their inherent instability; they exist as lived landscapes that are constantly in the making, a condition that resonates with Cattoor and Dewaelheyns' (2020) characterisation of residential gardens as spaces marked by inherent dynamism. Engaging with the gardens empirically also confirmed several disciplinary insights. Their capacity to expose the complexity of landscape, as discussed by Aben and De Wit (1999), became tangible in the close entanglement of social routines, ecological dynamics and spatial form. The role of gardens as cultural and relational thresholds described by Meyer (1991) was evident in the ways meanings and practices were continually reworked. Corner's (1999) understanding of the garden as a site of experimentation likewise found empirical grounding in the iterative adjustments through which the studied gardens evolved, shaped by the combined agency of humans and non-humans.

Approaching these gardens as commons clarified that commoning is an ongoing, uneven and sometimes fragile practice, shaped by continual negotiation among residents, materials and ecological processes. The empirical work showed that the

'common' emerges through repeated acts of coordination, care, and contestation, reflecting how collective life is constructed over time. These observations also resonate with and extend existing scholarship: several principles identified by Ostrom (1990), such as clearly defined boundaries, monitoring of use and recognition of rights to organise, found tangible expression in the design principles developed through this research, reinforcing insights already noted in recent studies of residential commons (Veras Morais et al., 2022). At the same time, this research contributes to a growing body of work that emphasises the spatial and territorial dimensions of commoning, aligning with Moss's (2014) argument that commons actively produce and reconfigure spatial relations and with Felstead et al.'s (2019) attention to how spatial arrangements and place-based practices shape collective life. This understanding highlights the central role of spatial and material infrastructures in sustaining commoning practices and the need for governance to operate in dialogue with ecological and design conditions. It also underlines an important disciplinary responsibility: design fields should claim the commons as part of their remit, engaging proactively with the uncertainties inherent in social dynamics and creating spatial conditions that support their ongoing negotiation.

Treating transformation as an analytical and interpretive lens expanded the conceptual ground of the study. Landscape architecture's established attention to composition, authorship, and typology gains depth when these elements are examined through their trajectories, as the empirical work made visible how compositions shift, routines sediment, and ecological processes reconfigure spatial form over time. This dynamic view resonates with Hunt's (2004) notion of the garden's afterlife, while extending it by showing how compositional and governance structures also participate in the evolution of meaning and use. Luo's (2021) principles for open-ended design similarly align with several of the design principles developed in this research; the specificity of the shared garden context, however, enabled these ideas to be translated into concrete spatial and organisational terms. Raxworthy's (2018, 2021) call for a landscape architecture that works with change finds comparable grounding in the cultivation of first- and second-order transformations observed in the study sites. Taken together, these insights position transformation as a central mode through which shared gardens take form, acquire significance, and remain adaptable over time.

Together, these reflections recast shared gardens as landscapes whose coherence arises from the continuous interplay between design intentions, collective practices, and ecological processes. The empirical work made clear that commoning, spatial composition, and transformation are not separate themes but mutually conditioning dynamics that shape how these gardens are lived and sustained.

6.2.2 On the research approach

This research adopted a qualitative, field-based research approach to investigate change in shared residential gardens as a situated and evolving phenomenon. As outlined in Section 1.6.1, the study was grounded in a constructivist perspective and relied on long-term engagement with the research sites, combining repeated field visits, observation, interviews, and interaction with residents and other actors involved in the gardens. This approach was chosen to enable an in-depth understanding of how spatial transformation unfolds through everyday practices, negotiations, and ecological processes that cannot be adequately captured through detached or short-term forms of analysis.

The research approach did not remain fixed throughout the doctoral process, but developed in response to insights emerging from the field and from ongoing academic debate. Initial explorations sought to understand the contribution of shared residential gardens to social and social–ecological resilience, examined through the interplay between garden design and commoning practices. This line of inquiry was gradually set aside when early fieldwork and preliminary analyses revealed greater analytical potential in examining the relationship between garden design and governance over time. This shift was informed by the observation that the very small scale and informal character of shared residential gardens did not align comfortably with existing social–ecological systems frameworks, and that a design- and governance-oriented perspective offered a more productive and discipline-specific entry point for landscape architectural inquiry.

Initial explorations focused primarily on human practices, governance arrangements, and spatial use, reflecting dominant analytical traditions within governance studies at the outset of the research. Over time, sustained engagement with the gardens made evident the extent to which ecological processes such as plant growth, soil conditions, and seasonal change actively shaped both spatial transformation and collective decision-making. In parallel, growing attention within academic debate to more-than-human perspectives sharpened the relevance of these observations. Together, these developments prompted an expansion of the analytical framework to more explicitly acknowledge non-human actors as integral to processes of change.

Accounting for non-human actors required methodological experimentation beyond classical ethnographic approaches. Plants, soils, water, and other ecological processes were treated as active participants in garden transformation, influencing spatial form, maintenance regimes, and governance practices. While this effort did not result in a full analytical alignment between human and non-human actors, it represents a deliberate attempt to move beyond exclusively human-centred modes

of analysis. This limitation is partly related to the positionality of the researcher as a human observer, for whom fully adopting a non-human standpoint remains inherently difficult, as well as to the humanistic origins of the methods employed, which were adapted rather than replaced. Nevertheless, the exploration constitutes a meaningful step towards more inclusive methodological approaches within landscape architecture research, acknowledging the role of non-human agency in shaping landscape transformation even where full analytical symmetry remains difficult to achieve.

While ethnography provided an important reference, the research approach did not follow a classical ethnographic model. Instead, ethnographic methods were adapted to the context of landscape architecture research. In addition to attending to social relations, meanings, and practices, particular emphasis was placed on spatial configuration, materiality, and landscape form. The gardens were studied not only as social settings but also as designed and evolving spatial environments, requiring methods that could address the physical organisation of space, planting, material change, and maintenance practices alongside human interaction.

Field immersion proved highly productive, supported by the researcher's training in landscape architecture and the affinity this creates with working in and through gardens. Sustained engagement with the sites enabled direct interaction with residents and other actors, and supported the generation of empirically grounded insights. The findings of the research emerged from close observation of lived situations and were subsequently positioned within existing bodies of literature, allowing connections to be drawn between broader theoretical discussions and situated experience. This approach made it possible to identify patterns, capacities, and principles that would have remained inaccessible through research conducted at a distance from the field.

6.2.3 **On compositional forms, actors and interactions as methods**

Integrating compositional forms, actors and interactions proved fundamental for understanding transformation in shared residential gardens. Working diachronically with the four compositional forms offered a productive structure for interpreting how design unfolds over time and enabled a level of specificity that would have been difficult to achieve otherwise. It clarified how different layers of composition change at different rhythms and for different reasons, and it provided the ground on which the design principles could be articulated with precision. At the same time, adapting these forms to the context of small, ordinary residential gardens required interpretative work, especially in developing modes of representation that

could support comparison across multiple sites. The diagrams produced through this process were essential in making broad patterns visible, yet their necessary simplification also meant that certain nuances — particularly those related to everyday aesthetic expression or subtle material conditions — were less directly captured and therefore had to be reconstructed through narrative and content analysis.

The combination of diagrammatic representation, content analysis, field observations, and archival materials made it possible to follow transformation in settings where change is often incremental and distributed. Content analysis proved especially valuable for working with unstructured data, enabling the identification of motivations, routines, tensions, and interpersonal dynamics that shape the gardens over time. However, because residents tend to report only the changes that prompted discussion or intervention, some of the most fundamental aspects of garden evolution, such as plant growth, were often implicit. Repeated site visits helped mitigate this by revealing seasonal dynamics and by capturing developments overlooked in earlier visits, while photographs and satellite imagery provided a longer temporal arc that individual accounts could not supply. These cross-referenced materials together formed a composite picture through which transformation could be interpreted at multiple scales of time and agency.

Extending the methodological framework to include actors and interactions enriched the analysis by situating spatial change within networks of practice, responsibility, and ecological behaviour. Identifying actors beyond formal governance structures relied primarily on written documents and residents' accounts, which revealed patterns of influence not immediately visible on site. This proved particularly important for understanding the role of non-resident human actors, such as landscape designers, architects, process facilitators, consultants, and professional gardeners. While the involvement of these actors was often limited to particular phases, such as design, implementation, or moments of collective decision-making, their impact persisted over time. Design configurations continued to condition spatial use and maintenance, early professional choices framed later possibilities for adaptation, and facilitation efforts influenced how governance practices developed and were sustained.

Bringing non-human entities into the category of actors remained a conceptual and practical challenge throughout the research. Governance practices and methodological tools are predominantly human-centred, and the researcher's own positionality inevitably shaped interpretation. Even so, attending to non-human actors proved essential for understanding how transformation emerges from interdependencies between growth, maintenance, material ageing, and environmental conditions, and for recognising how these processes actively shape both spatial change and collective decision-making.

Taken together, these methodological integrations expanded the scope of what could be observed and interpreted within the study. They enabled a reading of transformation that links composition, governance and ecological processes, and they demonstrated that methods traditionally used in landscape architecture and governance can be brought into productive dialogue when the aim is to understand how designed environments evolve. Despite the challenges inherent to multi-scalar and multi-actor analysis, this research shows that such integration can meaningfully extend existing methodological boundaries and support approaches that connect design thinking with questions of collective management and everyday landscape life.

6.2.4 **On cultivating change beyond shared gardens**

The comparative analysis of the three research sites, comprising 23 shared gardens, made it possible to articulate design principles that extend beyond the individual cases and speak to shared gardens more generally. This was enabled by identifying patterns and orders of transformation, and by examining how design and governance contribute to these transformations through their interrelated capacities. Because these dynamics arise from forms of shared living and collective management, their relevance naturally extends to other residential commons that rely on spatial organisation, collective use and negotiated care.

Several of the findings and design principles can also be applied, with reinterpretation, to other types of urban commons. The spatial and organisational questions raised in this research — particularly those concerning boundaries, permeability, shared responsibilities, and the enabling role of design — cut across contexts that involve collective governance of space. For example, the principles developed under the guideline ‘balancing private and shared’ resonate with situations where individual and communal spaces coexist, such as allotment complexes with shared facilities. Likewise, the guideline ‘fostering engagement’ articulates how design can support participation and collective agency in any setting where people co-create, maintain, or negotiate a shared environment.

The principles also hold relevance for other landscape typologies, including public and hybrid spaces. 'Designing for diversity' and 'supporting change through permanence' address conditions that are not specific to shared residential gardens, but characteristic of many designed landscapes that accommodate multiple forms of use and expression. Although the principles themselves were formulated in relation to the empirical material, the underlying guidelines can be applied from parks to streetscapes, provided they are interpreted in relation to each typology's ecological behaviour, social composition, and material structure. Similarly, 'navigating life cycles' offers a way of thinking about design over time that can be extended to numerous landscape settings, foregrounding the temporalities inherent to plants, materials, and human occupation.

Finally, the proposition of cultivating first- and second-order transformations provides a conceptual orientation that reaches beyond any specific landscape type. These orders refer, respectively, to changes that arise from natural development and material ageing, and to the incremental adjustments through which residents refine, repair, and reinterpret their surroundings over time. These orders describe fundamental conditions of how change arises in lived environments and therefore offer a way of guiding design processes that work with the long-term social-ecological dynamics of landscape. In this sense, the insights derived from shared residential gardens contribute to a broader disciplinary understanding of landscape as an evolving, negotiated, and co-produced environment.

6.3 Boundaries and pathways forward

This section considers the scope within which the findings of the study retain their relevance and the directions they open for future work. It first outlines the contextual, methodological and interpretative boundaries that shaped the research, clarifying the conditions under which its insights were generated. It then turns to the pathways that emerge from the study, highlighting opportunities for further research, for practice, and for the broader disciplinary project of engaging with landscapes as evolving social–ecological systems. Together, these considerations situate the contribution of the study and point towards its continued relevance beyond the cases examined.

6.3.1 Boundaries of context, methods and interpretation

The study is shaped by several contextual boundaries that inform, but do not diminish, the relevance of its findings. The shared residential gardens examined are situated within Dutch co-housing and ecovillage-adjacent settings, where participation and collective governance already hold a degree of cultural and organisational legitimacy. These environments offer fertile ground for investigating transformation in lived commons, yet they also reflect a particular socio-institutional context that may differ from residential settings with weaker governance cultures or more restrictive planning frameworks. Recognising this contextual specificity clarifies the conditions under which the findings were generated and provides a basis for assessing their applicability elsewhere.

In addition to cultural and institutional specificities, the study is shaped by temporal and professional conditions related to the selection of cases. By focusing on shared residential gardens located in the Netherlands and established approximately two decades ago, the research engages with a period in which a relatively small number of offices and professionals were particularly active in the design and facilitation of such projects. This helps explain the recurrent presence of certain actors, including Hyco Verhaagen, across multiple cases, reflecting a professional landscape in which ideas circulated widely among a limited group of leading practitioners. As a result, it becomes difficult to disentangle the influence of individual professionals from the broader design and governance discourses shaping projects during that period. The inclusion of cases involving other professionals mitigates a stronger authorial bias, yet the findings remain situated within a specific temporal–cultural moment whose imaginaries cannot be fully separated from the context in which they emerged.

Methodologically, the study does not aim to capture transformation in real time, nor does it claim to represent culturally diverse forms of shared living. The diachronic reconstruction of change relied on documents, interviews, observations, and visual records, which together provided a rich interpretive basis but could not follow every process as it unfolded. The approach clarifies relationships and trajectories, but it does not measure causality or seek to quantify the relative influence of design, governance or ecological dynamics. The comparative scope, encompassing 23 gardens, strengthened the identification of patterns across sites, although it necessarily limited the depth of ethnographic immersion in any single location. These methodological boundaries reflect deliberate choices about scale, comparability, and analytical focus.

Interpretively, the study is guided by a constructivist stance in which the account of transformation arises from situated readings of spatial, social, and ecological evidence. The concept of transformation functions as an analytical lens rather than a universal explanatory model, and its applicability depends on the landscape conditions, governance arrangements, and temporalities of each setting. Similarly, the notion of commons takes different institutional and cultural forms, and its expressions in the studied gardens cannot be assumed to represent all modes of collective stewardship. Certain kinds of change, particularly those that are incremental, ephemeral or unarticulated by residents, inevitably remain only partially visible through the available materials.

These boundaries do not undermine the contribution of the study; they clarify the scope within which the findings hold meaning and support their careful extension to other contexts.

6.3.2 **Pathways for research, practice and the discipline**

The insights developed in this study open several pathways for further research. Extending the methodological approach to other landscape typologies — including parks, streetscapes, non-cohousing residential settings, and rural commons — would help test how transformation unfolds under different social, ecological, and institutional conditions. Comparative research in contrasting cultural contexts could refine the understanding of how collective governance, spatial form, and environmental dynamics intersect. Longitudinal studies conducted in real time would also provide opportunities to observe transformation as it develops, complementing the diachronic reconstruction adopted here. In addition, following gardens across periods longer than the 20-year span available in this research may reveal temporal patterns or social–ecological feedbacks that remain difficult

to capture within a single generational cycle. Finally, methodological innovation is needed to better account for non-human agency, both analytically and through forms of data collection capable of registering ecological processes that often elude human reporting.

The study also suggests pathways for practice, particularly for approaches that bring design and governance into closer dialogue. Pilot projects could explore cultivating change as a collaborative framework, allowing designers and communities to work explicitly with the temporal and relational conditions through which shared landscapes evolve. The distinction between first- and second-order transformations offers a way of orienting interventions, helping practitioners recognise and support changes that strengthen everyday life while identifying situations where more disruptive reconfiguration may arise. The guidelines developed in this research may likewise serve as tools for structuring conversations among residents, designers, and local institutions, supporting collective reflection on how spatial arrangements, maintenance practices, and ecological processes interact over time. In settings where gardens have undergone significant wear or where expectations have shifted, such pathways could help anticipate future developments and reduce the need for third-order transformations.

At the disciplinary level, the study underscores the potential of cultivating change as both a conceptual and practical orientation for dealing with uncertainty and temporality in landscape architecture. Approaching design and governance as interdependent practices provides a lens through which to understand landscapes as evolving configurations shaped by social, ecological, and material dynamics. The analytical integration of transformation, commoning, and composition also suggests a way of situating everyday landscapes within broader theoretical debates, highlighting their relevance as sites where long-term social–ecological processes become materially legible. Taken together, these pathways point to a disciplinary project that positions landscape architecture as a dynamic social–ecological practice.

6.4 Final statement

Shared residential gardens offer a distinct vantage point for understanding how designed landscapes evolve through intertwined spatial, social, and ecological processes. By tracing transformation across multiple sites, the research made visible how everyday actions, material conditions, and governance arrangements shape the lived environment. The principles developed through this work offer ways of engaging with landscapes as unfolding systems in which human and non-human agencies are in constant negotiation.

Cultivating change, understood in this light, is less a method than a stance. It invites designers, residents, and institutions to work with the temporal and relational dimensions of landscape, recognising that coherence emerges not from fixing form but from supporting the conditions through which places develop, adjust, and endure. This perspective reinforces the idea that landscape architecture operates across timescales that exceed any single intervention and that governance, design, and everyday practice form part of the same continuous project.

As shared residential gardens continue to adapt to shifting social, ecological, and material circumstances, their trajectories remind us that change is an inherent property of lived environments. Attending to this condition expands the possibilities of how landscapes can be conceived, cared for, and sustained. The study therefore closes with an invitation to approach landscape architecture as an evolving social–ecological practice open to negotiation, responsive to uncertainty, and capable of supporting collective life over time.

Appendices

Interview protocol

Protocol for semi-structured interviews conducted with resident community representatives. (approximate duration: 1 hour)

Prepared in advance

- Original design plan or aerial photograph of the garden
- Overview of the community composition and housing units
- Summary of governance practices compiled from online publications and available governing documents (policies, meeting notes, gardening-day schedules, financial contributions)
- Informed Consent Form (ICF), sent by email prior to the interview

Part 1 | Seated interview

(interviewee's home, in the garden, or in the community building | approx. 45 minutes)

Opening

- Ask the resident to sign the ICF after confirming that they have read it and have no outstanding questions.
- Invite the resident to freely recount the history of the shared garden from the beginning.

Record or enquire about the following information (if known, request confirmation only):

Project initiation

- Who initiated the housing project?
- How did the garden design process unfold (designer(s), other actors involved, degree of community participation)?
- How was the garden realised (actors involved in construction and early maintenance)?

Design and implementation (show the image/plan of the garden)

- What was realised differently from the original plan, and why?
- What has changed since then, and why?

Information to confirm

- Composition of the community and number/type of housing units
- Summary of governance practices (decision-making procedures, roles, financial arrangements, maintenance routines)

Use and maintenance of the garden

- How and how often do residents use the garden?
- How are collective gardening days organised? Who is involved, how many people participate, and what roles do they perform?
- Frequency and nature of visits from non-residents; interactions with neighbouring shared gardens.

Notable events

- Conflicts or challenges relating to use, management, or maintenance
- Highlights of community life (festivals, celebrations, neighbourly support, etc.)

Closing questions

- What is the best thing about living in this shared garden?
- What would you change if you could?
- Request access to any historical photographic records of the garden.

Part 2 | Walk-along interview

(along the garden | approx. 15 minutes)

- Allow the resident to choose the walking route.
- Request permission once more to take photographs.

During the walk

- Take notes on features that differ from the original design or earlier imagery (e.g., vegetation growth, levels of openness and enclosure, added/removed/relocated/replaced objects).
- Note traces of use (personal objects, children's toys, tools left in the garden, arrangement of furniture, etc.).
- Point out and confirm changes mentioned during the seated interview.
- Record any additional information recalled by the resident while walking.

After completing the interview

- Ask the resident for permission to remain in the garden to take additional photographs, including sequential images along the main routes and panoramic photographs from key vantage points inside the garden, along the outer perimeter, and at garden access points.

Observation protocol

Protocol for on-site observations (approximate duration: 30 min)

- Recreate sequential photographs along the main routes, along the outer perimeter, and at garden access points, in addition to taking new panoramic photographs from key vantage points inside the garden.
- Take notes of the garden following the observation matrix below (materiality × spatiality), paying attention to aspects of seasonality, growth patterns, use, and form.

Observation matrix

| | | materiality | | | | |
|------------|----------------------------------|-------------|--------------|---------------|--------------|------------------|
| | | trees | other plants | ground covers | human traces | non-human traces |
| spatiality | aceses | | | | | |
| | main routes | | | | | |
| | 'rooms' | | | | | |
| | boundaries (individual x shared) | | | | | |
| | boundaries (shared x public) | | | | | |
| | boundaries (individual x public) | | | | | |

Codebook

Final list of codes from the content analysis conducted in Atlas.ti, based on interview transcripts and garden reports, complemented by aerial photographs.

| Objects of transformation (where) | | | |
|-----------------------------------|-------------------|--------------------|---|
| Code group | Parent code | Code | Description and code variations |
| Plants | natural processes | growth | bushes, flowers/edibles, hedges, lawn, trees |
| | | decay | bushes, flowers/edibles, trees |
| | human processes | added/expanded | bushes, flowers/edibles, lawn, trees |
| | | replanted/replaced | bushes, flowers/edibles, hedges, lawn, trees |
| | | removed/reduced | bushes, flowers/edibles, hedges, lawn, trees |
| | Increments | objects | added/expanded |
| replaced/relocated | | | furniture, structures, playground |
| removed/reduced | | | furniture, structures, fireplace, hot tub, playground, sports installations |
| shelters and habitats for fauna | | added/reinforced | birdhouses, burrow, chicken coop, dead hedge, moss, pond |
| | | removed/weakened | chicken coop |
| ground and surfaces | | added | ground cover, paving |
| | | modified/reshaped | pathway, terrain |
| | | removed | paving |
| use and affordances | | added/expanded | individual garden, shared garden, adjacent buildings |
| | | modified | identification of new affordances in an area or piece of equipment |
| | | underused | use restricted in an area or piece of equipment |

| | | | |
|---|-----------------------------|------------------------------|--|
| Transitions | thresholds | reinforced | ditch, hedges, fences, gates, signs |
| | | softened | ditch, wadi, hedges, signs |
| | buffers | furnished/ decorated | pot plants, seats, portable fireplace |
| | interfaces | furnished/ decorated | pot plants, seats, tables |
| Temporalities of transformation (when) | | | |
| Code group | Parent code | Code | Description and code variations |
| Implementation | during implementation | | features not realised, or realised differently |
| | 1-5 years | | adjustments within five years after implementation |
| Quiet evolution | 6-10 years | | adjustments from six to ten years after implementation |
| | 11-15 years | | adjustments from eleven to fifteen years after implementation |
| | sporadically or unspecified | | timeframe could not be determined, or the act is recurrent or seasonal |
| Renewal | 16-20+ years | | adjustments from sixteen years onwards after implementation |
| | future | | alterations planned to take place in the short term |
| Agents of transformation (who) | | | |
| Code group | Parent code | Code | Description and code variations |
| Humans | residents | household | homeowners and tenants |
| | | characterization | motivation for living in the garden, role in the community |
| | community | characterization | profile (background and demographics), group relationship (bonded, collaborative, contentious) |
| | | committee | gardening, other affairs |
| | | homeowners association (VvE) | garden included under VvE management. |
| | | residents association | board, entities and working groups |
| | non-residents | housing corporation | managing and representing rental units |
| | | municipality | responsible for the safety of public spaces |
| | | province | responsible for approving housing projects |
| | | third parties | gardens/gardening companies, consultants, mediators, landscape and garden designers |
| visitors | | guests, passers-by | |

| | | | |
|-------------------|---------|--------------------|---|
| Non-humans | biotic | vegetation | growth and decay |
| | | bacteria and fungi | decomposing material |
| | | urban fauna | birds, domestic animals, frogs, moles, plants, small urban wildlife |
| | abiotic | rainwater | expressed through erosion, ponding |
| | | soil | expressed through poor/rich quality, wetness |
| | | sunlight | expressed through light excess, deficiency |
| | | wind | expressed through selection of plant species |

Drivers of transformation (why)

| Code group | Parent code | Code | Description and code variations |
|--------------------------|----------------|---|--|
| Appropriation | use | delimitation/containment | residents' need for clearly defined boundaries and keep pets and children indoors |
| | | gardening | residents' interest and readiness to engage in gardening activities |
| | | diverse use | desire for more space for leisure/social interaction, and diverse habitat/food provision |
| | | flexibility/convenience | residents' need for increased flexibility and convenience in use |
| | experience | cosmetic | residents' desire to increase colour/texture variety |
| | | external nuisance | noise, litter, safety concerns |
| | | internal nuisance | noise, smoke, damage |
| | | light/view | residents' desire for increased light or to create/preserve view lines |
| | | privacy/enclosure | residents' need for privacy and to create/preserve intimate space |
| | | temperature regulation | to reduce heat |
| | meaning | symbolism | natural or built elements that hold meaning for the community |
| | | ecological awareness | residents prioritise environmental aspects over aesthetics |
| | | orderly aesthetics | residents' need for neatness, organization and decoration |
| Resource capacity | workforce | workforce for gardening and maintenance among residents | |
| | skill/interest | skill and interest in gardening and maintenance among residents | |
| | finances | limited financial means for gardening and maintenance | |

| | | | |
|------------|----------------|------------------|--|
| Life cycle | life and death | dead pets | household animals not replaced |
| | | fauna activity | fauna–garden interactions (e.g. mole mounds) |
| | | plant decay | wilting or dying plants |
| | | plant growth | plants sprouting and developing |
| | wear and tear | breaking/overuse | furnitures and structures |
| | | rotting | materials |
| | household | aging residents | children growing up and adults aging |
| | | new children | new children thanks to turnovers |
| | | safety concerns | related to life stages |

Settings of transformation (how and what)

| Code group | Parent code | Code | Description and code variations |
|---------------------|-------------------------|---------------------|--|
| Governing community | informal interactions | informal planning | agreements among residents; gardening and social activities are somewhat planned |
| | | informal response | casual conversation (horizontal and vertical), individual initiative, non-verbal, spontaneous |
| | procedural interactions | procedural planning | committee meeting, courtyard meetings, neighborhood meetings |
| | | procedural response | consultation (vertical), door-to-door survey (horizontal), full-consent (horizontal), simple majority vote (horizontal), special court meeting (horizontal), super majority vote (horizontal), top-down decision |
| Compositional form | basic form | | change affected the composition's fundamental geometry and layout |
| | image form | | change affected the colors, textures, and evocative aspects of the garden |
| | program form | | The change affected how garden surfaces and elements are used |
| | spatial form | | change affected the garden spaces |

Design workshop guide

Design workshop conducted with landscape designers and doctoral candidates in landscape architecture, architecture, and urbanism.

Prepared in advance

- Slide presentation containing a brief explanation of the research and the assignments
- Booklet of guidelines, including descriptions, explanations, and visual examples
- Assignment booklet, containing: the housing project plan, allocated garden perimeter and access points (1:400 and 1:250), a section of the housing project (1:250), and photographs of the building façades and surroundings

Workshop programme

- Walk-in, division of participants into teams and introductory round (15 minutes)
- Presentation of the research (15 minutes)
- Assignment 1: hands-on design session (1 hour)
- Assignment 2: assessment in teams (30 minutes)
- Discussion (15 minutes)
- Closing (15 minutes)

Assignment 1

- Develop a design composition for Garden A or Garden B, imagining how it may evolve over time.
- Apply the provided guidelines to your proposal.
- Represent at least two different points in time, showing how the garden could transform over the years.
- Identify the stewardship practices required to support the envisioned transformation, considering how both human and non-human actors may drive change.

Assignment 2

- Which guideline(s) did you apply in your design? Briefly describe how they informed your proposal.
- Which guideline(s) proved most valuable? Explain why they were particularly effective or meaningful in your design process.
- Were there any guideline(s) that felt less relevant? If so, describe which ones and explain why they did not align with your design context.
- Would you suggest adjusting any guideline(s)? Propose modifications based on your design experience.

Discussion

- The appointed speaker from each group briefly presents the proposal and the team's impressions.
- Encourage the groups to discuss their impressions with one another.

Focus group guide

Focus group conducted with residents of Lanxmeer.

Prepared in advance

- Information booklet, including a research summary, key findings, and the design guidelines (sent in advance by email)
- Slide presentation containing a brief explanation of the research and the guidelines, followed by guiding questions

Programme

- Walk-in and introduction (15 minutes)
- Presentation of the research topic (15 minutes)
- Discussing guidelines (60 minutes, approx. 10 minutes per guideline)
- Open discussion: suggestions and concerns (30 minutes)
- Closing

Discussing guidelines

- Explanation of the guideline with visual examples from gardens in Lanxmeer
- Open to reactions

Open discussion

- Are you happy in your garden?
- Past, current, and future challenges?
- Do you believe the garden design can support the community in facing these challenges?
- Feedback on the research

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Curriculum vitae

Education

- 2018-2020** **MSc in Landscape Architecture**
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- 2012- 2015** **MSc in Civil Construction**
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- 2012- 2014** **Specialisation in Landscaping**
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- 2004-2009** **BSc in Architecture and Urbanism**
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Biography

Monica Veras Morais (Fortaleza, 1985) is an architect and urbanist trained in Brazil, with additional qualifications in civil construction and landscape architecture. Early in her career, she contributed to housing and public space projects as a junior architect. Before relocating to the Netherlands, she taught for three years in undergraduate programmes in Architecture and Urbanism — an experience that consolidated her interest in academic research and education.

Site-based inquiry has consistently guided her work. In her master's dissertation in civil construction, she developed a methodology to assess user satisfaction in low-income housing in Brazil, combining focus groups and on-site interviews with visual tools. Her second master's thesis, in landscape architecture, employed the micro-stories method to trace lived experiences in Brazil's semi-arid region, laying the foundation for water-retention landscape strategies.

Her doctoral research at TU Delft brought together these interdisciplinary strands through a study of shared residential gardens. Using site-based ethnographic methods, she developed design principles to cultivate change through the ongoing collaboration of garden design and governance in residential commons.

Throughout her PhD, Monica remained actively engaged in academic life. She represented the Department of Urbanism in the BK PhD Council (2022–2024) and served as a delegate on the Board of Examiners (2023–2025). She also contributed to teaching in the MSc Landscape Architecture programme, tutoring the courses Research Methodology in Landscape Architecture (2023–2025) and the elective design studio ON Site: Landscape Architectonics Explorations (Q4 2023, 2024, and 2025).

In the final year of her PhD, she co-authored a successful proposal for the Kick-Starter Grant of the Resilient Delta Initiative (Convergence), in collaboration with colleagues from TU Delft and Erasmus University. The project explores transdisciplinary, place-based research in the interstitial spaces of Rotterdam Northwest, working alongside grassroots organisations and engaging MSc students in landscape architecture.

She also contributed to a successful proposal for the Driving Urban Transitions (DUT) Partnership 2024 Call, co-funded by the European Commission and NWO, as part of a consortium including TU Delft (Netherlands), BOKU University (Austria), and UNIFI/EURAC (Italy).

Monica is currently a postdoctoral researcher at TU Delft within the DUT project 'FAIR – Fostering Water Circularity in Peri-Urban Landscapes', where she co-designs circular water strategies in Midden-Delfland — enthusiastically embracing the challenges ahead.

Publications

Books and peer-reviewed papers

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Conference contributions

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Veras Morais, M., van Bueren, E., & de Wit, S. (2025). *Advancing social-ecological inclusivity: The role of spatial design and community-led governance in Dutch residential neighbourhoods* [Conference abstract]. 17th International Forum on Urbanism (IFoU25), Lisbon, Portugal.

Veras Morais, M., & de Wit, S. (2025). *Place-based acupuncture: Cultivating inter- and transdisciplinary collaboration through immersive experience in interstitial spaces of Rotterdam, the Netherlands* [Oral presentation]. AMPS Research & Teaching Conference: Exploring Academia — From Practice to Publishing, Prague, Czech Republic.

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Veras Morais, M. (2024). *Shared residential gardens as regenerative social-ecological landscapes in the Netherlands* [Poster presentation]. ECLAS Conference 2024: Regenerative Landscapes — Designing the Transition, Doctoral Colloquium, Université Libre de Bruxelles, Brussels, Belgium.

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Cultivating Change

Investigating Landscape Transformation in Shared Residential Gardens

Mônica Veras Morais

How do shared residential gardens change over time, and what can these changes teach us about designing spaces for collective life? This book explores these questions through an in-depth study of shared gardens as lived, negotiated and evolving landscapes.

Grounded in long-term, on-site research, the dissertation approaches shared residential gardens as residential commons: spaces shaped by design intentions, everyday use, care and collective governance. Adopting an ethnographic perspective within landscape architecture, it attends to small-scale transformations, incremental adjustments and moments of negotiation through which gardens are continuously reinterpreted and reshaped by human and non-human actors alike.

Using landscape transformation as an analytical lens, the research examines how spatial composition, social-ecological practices and governance arrangements interact over time. Shared gardens are treated as landscape laboratories in which patterns of change can be observed, traced and reflected upon, revealing how design and governance co-evolve in practice. The study is based on fourteen shared gardens in the EVA-Lanxmeer neighbourhood in Culemborg, the Netherlands, and is complemented by two comparative cases: De Kersentuin in Leidsche Rijn, Utrecht, and Vrijburcht on Steigereiland, Amsterdam, totalling twenty-three shared gardens.

The findings show that the long-term quality of shared residential gardens depends less on fixed design solutions than on the capacity of spatial frameworks and collectively negotiated rules to accommodate change. Rather than treating design and governance as separate domains, this book understands them as interrelated and reflective practices that continually inform and reshape one another. In doing so, it positions landscape architecture as a time-based and relational discipline, offering insights for researchers and practitioners engaged with collective spaces and everyday landscapes.

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